THE IRON TRADE REVIEW

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RAIL ORDERS

FOR NEXT YEAR'S DELIVERY ARE BEING PLACED.

Many Cars Ordered in Hope of Preventing Shortage—Pig Iron Prices Firm.

Continued ordering of many locomotives and cars by the railroads indicates that they appreciate the necessity of large increases in equipment, but it is doubtful whether car building companies will be able to fill orders rapidly enough to prevent a serious car shortage before the beginning of the new year. Furnace and mill activities are increasing, and specifications against contracts are very heavy. The Steel Corporation is operating about 92 per cent of its furnace capacity, as high a percentage as can be reached under present conditions. Its Columbus plant will be put in operation as soon as repairs can be completed. Independent interests are likewise increasing their production.

Rails for Next Year

The Steel Corporation has opened its books for rail orders for next year's delivery, and several important systems have already made reservations of large tonnages. Prices remain unchanged. For this year's delivery, rail sales for the week amounted to about 20,000 tons, of which 15,000 were sold in the Chicago district.

Pig Iron Conditions

Stocks of blast furnaces in the central west continue to decrease at the rate of about 8,000 tons per week, and selling interests are showing very little disposition to take orders for next year's delivery. In the Pittsburg district, there is still lively interest in steel-making irons, and brokers have been very active in endeavoring to buy basic for next year's delivery, but with little success. One sale of 6,000 tons of basic for immediate delivery was made at $15.25 at the furnace. The Standard Steel Car Co. has not succeeded in covering for its requirements for next year, and its inquiry for 100,000 tons of basic is still pending. Among the larger sales of the week are one of 5,000 tons of charcoal iron to a South Bend, Ind., plow works, and several round tonnages in the Chicago district. Pig iron prices throughout the country are firm with an upward tendency.

The New Tariff

Careful investigations are being made by numerous importers to determine whether it would be profitable to bring pig iron, billets and old material from foreign countries under the reduced tariff rates, but, up to date, there seems to be little prospect that there will be any considerable increase in importations, although some scrap will probably be brought from South American countries. The placing of a duty on zinc has been followed by indications of almost unprecedented prosperity for that industry.

Steel Bars

The steel bar market is very strong, and the minimum price has advanced $1, being now 1.35c, Pittsburg. Some independent interests have advanced their quotations on plates $1 per ton, and the leading interest is gradually increasing its output of tin plate, in spite of the strike against the open shop in its mills. Independent tin plate companies are advancing their prices.

Railroad Buying

The Baltimore & Ohio has ordered 1,000 gondolas, 1,000 coke cars, and 600 all-steel hopper cars from the Standard Steel Car Co., and 1,000 all-steel coke cars from the Cambria Steel Co. It is expected that about 2,000 more cars will be ordered soon. The Pennsylvania lines west ordered 2,000 coke cars from the Standard Steel Car Co., and 600 from the Cambria Steel Co. The Burlington is figuring on 1,500 freight cars. The Illinois Terminal Co. is preparing specifications on 1,000 all-steel narrow gage freight cars. The Erie has placed an order for 100 furniture cars, and is expected to order several thousand freight cars at an early date.

Structural Material

Structural contracts for the first two weeks of August amounted to about 50,000 tons, of which only about 5,000 tons went to the leading interest. Several important railroad systems are expected to place important orders for bridge material. The contract for the Pullman shop, calling for 10,000 tons, was awarded to the Kenwood Bridge Co. The Carnegie Steel Co. will furnish 1,500 tons of plates and shapes for the new furnace of the Youngstown Sheet & Tube Co. to be erected by the William B. Pollock Co. Two new battleships will require 13,000 tons of plates. The Carnegie Steel Co. will furnish from 40,000 to 50,000 tons of plates and shapes for B. & O. cars recently ordered.

Coke and Old Material

The Steel Corporation has placed an order for 25,000 tons of coke per month for the remainder of the year. The coke market is firm, prices showing a tendency to advance. The scarcity of labor in the Connellsville region is a factor of increasing importance. The new plan of buying scrap inaugurated by buyers in the Philadelphia district is working satisfactorily.

NUT AND BOLT PRICES ADVANCED.

New York, Aug. 18.—Bolt prices were advanced 7½ per cent at a meeting yesterday, making a 10 per cent advance in the past month.

Prices on hot pressed nuts have been advanced $4 per ton. Decision on cold pressed will be made this afternoon.

The Lackawanna Steel Co. has sold 5,000 tons of special ferro-titanium rails to the Burlington for early delivery.

THE WEEK IN IRON CENTERS

PITTSBURG.

Deliveries Being Slowly Extended—Car Shortage in Prospect.

Office of THE IRON TRADE REVIEW,
510 Park Building, Aug. 17.

New factors which in themselves tell a favorable story of crowded order books and a greatly broadened consumption in the country at large are of rising prominence in the iron and steel industry at the present time and are beginning to attract the thoughtful attention of both makers and buyers. The question of delivery is rapidly becoming a matter of first importance in the market and the freight car situation is being keenly watched in the belief that actual shortages may soon make themselves felt in the movements of the industry.

The mills are gradually falling behind in their shipments, as the flow of specifications, which has been running heavily over the past three months, continues unabated. A number of the makers of the more active lines have been entering a larger aggregate of tonnage than they have been producing. The position of the leading interest in this respect reflects the general situation. Steel bar deliveries now run from six to 10 weeks, according to sizes, sheets are averaging about five weeks, although considerable stock in some grades is on hand, and plates and shapes range from six to eight weeks. The shape and plate situation is affecting that of fabricated material, in which the deferred deliveries of the plain steel, as well as the filled-up shops, have extended the time of fulfillment of contracts in some cases to three months. Suitable freight car equipment is not so free to shippers and it is seriously predicted in some quarters that a shortage of cars will be experienced during the fall, if the market's present activity is sustained.

An advance of the minimum price of steel bars to 1.35c Pittsburg was made during the past week. Some independent companies are asking 1.40c. The general tone of prices is very strong and a gradual recovery of the market to levels prevailing before the depression is anticipated. Raw materials, pig iron and old material are advancing, while coke, after lagging for months, is now hardening. The effect of a labor shortage in the Connellsville regions is appearing in this market.

Interest continues to be shown by domestic buyers in foreign markets because of the revised tariff law and, in some classes of semi-finished steel, prices equivalent to or slightly lower than those of American makers are available at eastern seaboard points.

Iron Ore—A furnace interest in the Pittsburg district has purchased a block of 32,000 tons of Mesabi non-Bessemer ore for delivery over the remainder of the present year at the full regular price of $3.50 at lower lake ports.

Pig Iron—The needs of large melters, principally in steel-making iron, continue to command the attention of the market. Both buyers and sellers are acting cautiously, the former in an effort to avoid exciting the market and the latter because of a reluctance to commit themselves on prices for extended future shipment.

The inquiry of the Standard Steel Car Co. for 100,000 tons of basic for 1910 delivery is still open, but negotiations are under way with several furnaces and a purchase may be made soon. Other large inquiries are still pending. It is reported that upon one of these a steel interest has bought 2,500 tons of basic for prompt shipment from a Mahoning valley furnace. Several local foundries are in the market for Bessemer, one for 500 tons for this year, and the other for 1,000 tons for first half. Some makers are declining to quote on next year's business at this time, one maker passing in the week about 15,000 tons of steel-making iron of this description. A sale of note during the week was that of 200 tons of Bessemer for fourth quarter at $16.50 valley.

The recent selling of No. 2 foundry iron for fourth quarter at $15.25 valley has been confined to a few furnaces, as most makers are asking $15.50 or better. There is quite a spread in prices of forge iron, sales having been made to this territory at both $14.75 valley and $14.25 nearby furnace.

Furnace operations in the Mahoning and Shenango valleys and in the Pittsburg district are to be increased soon by the addition of five stacks to the active list. Kittanning and Clinton will resume about Sept. 1, Fannie of M. A. Hanna & Co. in the Shenango valley about Sept. 15, and Mary of the Ohio Iron & Steel Co. in the Mahoning valley, and Ella of Pickands-Mather & Co. in the Shenango valley at near dates. All but Clinton will run on steel-making iron.

We quote spot and third quarter delivery on northern iron as follows:

Bessemer, valley	$16.00
Bessemer, Pittsburg	16.90
No. 2 foundry, Pittsburg	16.15 to 16.40
Gray forge, Pittsburg	15.00 to 15.40
Basic, valley	15.25 to 15.50
Basic, Pittsburg	16.15 to 16.40

Ferro-Alloys—There is still considerable indefiniteness in ferro-alloys, as the market is adjusting itself to the new price standards on the foreign grades brought about by the revised tariff law. Ferro-manganese appears to have absorbed the $1.50 reduction in duty without perceptible weakening and is quoted at from $41 to $41.50 Baltimore for prompt or future shipment to the end of the year. Selling of 50 per cent ferro-silicon has been done at about $64 Pittsburg, but asking figures cover quite a wide range. Inquiry for the alloys is rather quiet, but much material had been previously bought subject to change in the duty at the risk of the purchaser.

We quote ferro-manganese at from $41 to $41.50, Baltimore, prompt shipment, or for delivery this year and the first half of 1910, $42.50 to $43.50 Baltimore. The freight from Baltimore to Pittsburg is $1.95.

Fifty per cent ferro-silicon is quoted at $64 to $66, Pittsburg; domestic 12 per cent, $26; 11 per cent, $25; 10 per cent, $24, Pittsburg.

Plates.—Bids were opened by the government, Aug. 18, for the construction of the new first class battleships, Arkansas and Wyoming. Each vessel will require 13,000 tons of steel hull material in addition to the armor plate. For the 2,600 steel cars, including 1,000 gondolas, 1,000 coke and 600 hoppers awarded the Standard Steel Car Co. by the Baltimore & Ohio railroad, the Carnegie Steel Co. will furnish from 40,000 to 50,000 tons of plates and shapes. The Cambria Steel Co. has also been given the contract for 1,000 steel coke cars for the same road. A heavier tonnage of structural plates than is being made is going on the books of some makers and as a result deliveries, now ranging from six to eight weeks are gradually falling behind. Prices are very firm with 1.40c, Pittsburg, as the present minimum. We quote the plate market as follows:

Tank plates, ¼-inch thick, 6¼ to 100 inches, 1.40c to 1.45c, mill. Extras are as follows, per 100 pounds: Boiler and flange steel plate, 0.10c; A. B. M.

A. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.20c; marine steel, 0.40c; locomotive firebox steel, 0.50c; all sketches, excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end not being less than 30 inches, 0.10c; circles, 0.20c. Plates in widths over 100 inches up to 110 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to to 130 inches, 0.50c; over 130 inches, 1c. Gages under ½-inch to and including 3/16-inch plate on thin edge, 0.10c; under 3/16 to and including No. 9, 0.25c. Five cents extra for less than carloads. Terms, net cash in 30 days.

Sheets.—As indicated by the current orders, present consumption of sheets is holding well around a normal stage. Specifications are large for this season and of a very diversified character, showing the favorable conditions of trade among users in general. Price weakness has practically disappeared, that ruling in galvanized sheets having been eliminated by reason of the increased price of spelter. Deliveries in sheets now average from five to six weeks. There has been considerable activity in corrugated sheets in this territory lately and sales have aggregated about 1,000 tons. The American Sheet & Tin Plate Co. is now operating all its serviceable plants with the exception of the Aetna-Standard and has running 142 mills or 80 per cent of its active equipment. During the corresponding week in 1908 it was operating 104 mills or 56 per cent of capacity. Many of the independents are running full and their activities are at about 85 per cent of capacity. We quote present sheet prices as follows:

Blue annealed sheets, Nos. 10 and heavier, 1.60c; Nos. 11 and 12, 1.65c; Nos. 13 and 14, 1.70c; Nos. 15 and 16, 1.80c; box annealed sheets, Nos. 10 to 12, 1.85c; Nos. 13 and 14, 1.90c; Nos. 15 and 16, 1.95c; Nos. 17 to 21, 2c; Nos. 22 to 24, 2.05c; Nos. 25 and 26, 2.10c; No. 27, 2.15c; No. 28, 2.20c; No. 29, 2.25c; No. 30, 2.35c; galvanized sheets, Nos. 13 and 14, 2.25c; Nos. 15 and 16, 2.40c; Nos. 17 to 21, 2.50c; Nos. 22 to 24, 2.65c; Nos. 25 and 26 2.85c; No. 27, 3.05c; No. 28, 3.25c; No. 29, 3.40c; No. 30, 3.65c; painted roofing sheets, $1.55 per square for No. 28 gage, 2½-inch corrugation, and galvanized roofing sheets, $2.80 per square for No. 28 gage, 2½-inch corrugation.

Tin Plate.—Both orders and new business in tin plate are especially good for the mid-summer season and manufacturers have been rather agreeably surprised at the sustained movement. Fruit and vegetable crops will evidently be large, as the canners have ordered tin plate heavily. The bookings of the leading interest last week were at the rate of its full capacity. The American Sheet & Tin Plate Co. reports the increase of its tin mill operations to 137 mills or 62 per cent of its 221 serviceable mills. At New Castle, 22 mills are running, 12 at the Shenango mill and 10 at the New Castle. Ten mills are active at Sharon. At the corresponding week in 1908, the company was operating 56 per cent of its capacity. Independent plants are running practically full. Tin plate prices are regular and we quote as follows:

Coke tin plate, 100-pound basis, 14 x 20, $3.45 f. o. b. mill, Pittsburg district, and $3.40 in large lots. Terms 30 days, less 2 per cent for cash in 10 days.

Rails and Track Material.—An increasing tonnage of standard sections is being entered by the local maker and a considerable portion of this is coming from the west where the mills have sold-up capacities in Bessemer rails. Inquiries are better and prospects are steadily improving. The light rail trade is excellent, the bookings of the Carnegie Steel Co. the past week being 2,000 tons to domestic buyers. There is a heavy demand for track fastenings. The Baltimore & Ohio railroad is in the market for 4,000 kegs of standard spikes. The spike market is firmer. We quote the market on Bessemer rails as follows, the base price on open-hearth rails being $30, mill:

Fifty-pound and heavier, 500-ton and over, $28; carloads and less than 500 tons, $30; less than carload lots, $32; light rails, 8-pound, $31; 12-pound, $30; 16 to 25-pound, $29; 30 to 35-pound, $28.75; 40 to 45-pound, $28; angle splice bars for standard sections, 1.50c, Pittsburg; standard spikes, 1.65c to 1.70c, Pittsburg; hand spikes, 1.65c to 1.75c, Pittsburg.

Steel. — Domestic consumers of semi-finished steel continue to sound the foreign markets to acquaint themselves with any opportunities for profitable purchase that may be presented under the reduced duties of the new tariff law. Selling importers represent that small open-hearth billets from German makers may be laid down at eastern seaboard at about $28.50 by reason of the 1/10 cent per pound less duty provided by the Payne-Aldrich bill. With such billets held by domestic makers at from $26 to $27, Pittsburg, this condition puts foreign steel of this grade upon an equivalent or slightly less basis, provided full freight from Pittsburg to seaboard is taken into account. The domestic steel market continues very strong with a limited supply being offered for sale owing to the increased consumption of the makers and because of their faith in the future level of prices. Forging billets are especially difficult to obtain and producers when disposed to sell, are realizing practically their own prices.

Bessemer 4 x 4 billets with 0.25 carbon and less are regularly quoted at $24.50 to $25.50, Pittsburg, with the usual extras for size and analysis, and open-hearth rolling billets from $25.50 to $26.50, Pittsburg. Forging billets are held at $28 to $29, Pittsburg. Sheet and tin bars are quoted at $26, Pittsburg.

Hoops.—The hoop business is showing renewed life and orders to the mills which are coming largely from the miscellaneous consumers are heavier than for some time. The larger users are becoming more interested in the market and are giving some orders for prompt shipment. During the past several weeks, the hoop mills of the Carnegie Steel Co. have been running full. There is some irregularity in prices when specifications are especially desirable. We quote the market as follows:

Hoops in carload lots, 1.40c to 1.50c; in less than carload lots, 1.60c; bands, 1.35c, base half extras as per standard steel.

Merchant Bars.—Toward the close of the past week, the Carnegie Steel Co. made another advance in its price of steel bars, putting the minimum of the market to 1.35c, Pittsburg. Some of the independents which have been keeping their asking prices in advance of that of the leading interest have raised to 1.40c, Pittsburg, but others have not officially taken this step, although they expect to do so soon. Present prices are being made to apply to periods of deliveries not exceeding three months. Specifications are very heavy and shipments are slow, running in some sizes in carload lots up to ten weeks. The bar iron market continues more active and aggregate sales are very fair. The western market is stronger and is now quoted at from about 1.37½c to 1.42½c, Chicago, and 1.35c, St. Louis. Shafting is moving quite well and discounts are unusually firm. We quote the present market as follows:

Common iron bars, 1.45c to 1.50c, Pittsburg; Bessemer and open-hearth

steel bars, 1.35c to 1.40c; plow and cultivator, 1.35c to 1.40c; channels, angles, zees, tees, under 3-inch, 1.45c, all f. o. b. mill. The following differentials are maintained on steel: Less than 2,000 pounds, 0.10c advance; less than 1,000 pounds of a size, 0.30c advance. Cold rolled and ground shafting, 60 per cent in carloads and 55 per cent in less than carloads, delivered in base territory. Planished and machine straightened tire is 1.55c base; iron finished tire under 1½ by 1½ inches, 1.50c, both plus ½ extra on tire card; iron finished tire, 1½ x ½ and over, 1.35c, plus ½ extra on the steel bar card.

On coild rolled strip steel, width 1½ inches and wider, and 0.100 inch and thicker, we quote base prices for 100 pounds, $3.05 on hard, and $3.30 on soft.

Structural Material.—Deliveries of structural material have become a factor of increased importance in the awards of current lettings. The shape mills are so filled that deliveries of plain material are up to six weeks in arrears and with practically all the shops busy to capacities, shipments of the fabricated product are not easily obtained in less than two to three months. The inquiry is not very active. Shape prices are firm. Bids are going in this week on 1,200 tons of sheet steel piling for coffer dam construction for the chain of rocks settling basin of the city of St. Louis. The Carnegie Steel Co. will furnish 1,500 tons of shapes and plates for the new blast furnace of the Youngstown Sheet & Tube Co., the contract for which has been awarded to the William B. Pollock Co. Bids are about to be taken for the large extension of the plant of the McKeesport Tin Plate Co., at Port Vue, Pa., which will require about 1,000 tons. The Jones & Laughlin Steel Co. has taken an additional 100 tons of sheet piling for work of the Missouri River Improvement Co., at Helena, Mont. We quote the market on structural shapes as follows:

Beams and channels, 15-inch and under, 1.40c to 1.45c; over 15 inches, 1.50c to 1.55c; zees, 1.40c to 1.45c; tees, 1.40c to 1.45c; angles, from 3 to 6 inches, 1.40c to 1.45c; over 6 inches, 1.50c to 1.55c; universal and sheared plates, 6¼ inches wide and wider, 1.40c to 1.45c.

Merchant Pipe.—Prices in merchant pipe remain unchanged and the mills are accepting orders from jobbers to be fully specified by Sept. 1 and delivered thereafter at maker's convenience. Expectation of higher prices soon is causing some efforts at speculative buying, but the mills are scaling down these transactions to tonnages that about represent the customer's regular needs. Most makers are booked full for some time ahead and more are strong in sentiment on the market's future. Not much activity in line pipe is now discernible. We quote the following official discounts on merchant pipe subject to an additional one point and five off to jobbers:

	—Steel—		—Iron—	
	Black.	Galv.	Black.	Galv.
⅛ and ¼ inch.....	72	56	67	..
⅜ inch	73	59	68	54
½ inch	76	64	71	59
¾ to 6 inch	80	70	75	65
7 to 12 inch	75	60	70	53
PLUGGED AND REAMED.				
1 to 4 inch	78	68	73	63
EXTRA STRONG PLAIN ENDS.				
⅛ to ⅜ inch.....	65	53	60	48
½ to 4 inch.....	72	60	57	55
4½ to 8 inch.....	68	56	63	51
DOUBLE EXTRA STRONG PLAIN ENDS.				
½ to 8 inch.....	61	50	56	45

Boiler Tubes.—Some improvement is to be noted in the tube market, which has been only moderately active for months. The locomotive trade is better and merchant buyers are ordering a little more freely. The market is subject to its usual irregularity. We quote the following official discounts on lap-welded steel boiler tubes to jobbers in carloads:

1 to 1½ inch	50
1¾ to 2¼ inch	62
2½ inch	64
2¾ to 5 inch	70
6 to 13 inch	62

2½ inch and smaller, over 18 feet, 10 per cent net extra.
2¾ inch and larger, over 22 feet, 10 per cent net extra.
To destinations east of the Mississippi river will be sold at delivered discount for carloads lowered by two points, for lengths 22 feet and under; longer lengths, f. o. b. Pittsburg.

We quote the following official discounts on charcoal iron tubes to jobbers:

1 to 1½ inch	45
1¾ to 2¼ inch	45
2½ inch	50
2¾ to 5 inch	57
6 to 13 inch	45

Wire Products.—Orders from the jobbing trade for nails and bar iron are fair, but the fall movement to the farming consumers has not yet set in. Some of the jobbers have heavy stocks taken on at the previous lower price levels. The manufacturing users are steadily specifying for their needs, which are large, and this phase of the market is quite favorable at this time. New business is moderate. We quote present prices as follows:

Wire nails, jobbers' carload lots, $1.80; retailers' carload lots, $1.85; painted barb wire, jobbers' carload lots, $1.80; retailer' carload lots, $1.85, with 30c for galvanizing; plain wire to jobbers in carloads, $1.60, and to retailers in carloads, $1.65; polished staples, $1.80; galvanized staples, $2.10.

Wire Rods—Makers of rods are disposed to be cautious in their further sales, as their own need for steel has increased. The trade is well covered, however. We quote nominally $31 Pittsburg on Bessemer and $32 Pittsburg on open-hearth rods.

Coke—A further slight stiffening in spot coke has come in the week and this is believed to be due in a large part to the existing scarcity of labor in the Connellsville region, which is more generally interfering with operations. Lack of water has also had some effect. There has been some buying over the last half by furnaces which are about to go into blast, and an eastern steel company is in the market for 8,000 tons monthly over the last quarter. Large foundry operators are receiving very liberal specifications against contracts and, while immediate shipments have been the order for many months, consumers are now being notified that orders cannot be filled in less than a week to 10 days. Many buyers are interesting themselves in next year's requirements, but are meeting with comparatively high prices in some quarters, owing to the reluctance of makers to sell far ahead. We quote spot furnace coke at from $1.70 to $1.75 ovens, and on contract from $1.75 to $1.85 ovens, according to grade. On first-class foundry coke the range is from $1.95 to $2 ovens on prompt, and $2 to $2.35 ovens on contracts. The *Courier's* figures of the Connellsville region for the week ending Aug. 7, are 30,542 ovens active with an output of 395,664 tons, compared with 30,372 ovens and a production of 385,817 the preceding week.

Old Material—Recent selling of monthly lists by the Pennsylvania railroad and the Baltimore & Ohio railroad have tended to emphasize the strength of the scrap market as to prices and the confidence of dealers in future levels. The heavy steel of the Pennsylvania accumulation brought a price close to $17 on eastern divisions, and considerable of this tonnage is believed to have gone to the Philadelphia market, where high prices are ruling. Dealers took some of the steel along the Pittsburg division at about the same price. Some of them are now asking as high as $17.50 for heavy melting stock. The mills are holding off or buying quietly, fearing to put the market up on themselves. Some large melters are evidently in need of scrap, but are using up their own production of old material with larger proportions of pig iron than is the customary practice. Other grades of scrap are moving quietly, but are firm in price. We quote gross tons

delivered in the Pittsburg district as follows:

Heavy melting scrap, $16.25 to $16.75; re-rolling rails, $16.50 to $17; bundled sheet scrap, $14.50 to $15; iron axles, $24.50 to $25.50; old iron rails, $18.50 to $19; No. 1 wrought scrap, $16.50 to $17; old car wheels, $16 to $16.50; low phosphorus, $19 to $20; machine shop turnings, $11.25 to $11.75; cast borings, $9.25 to $9.75; No. 1 cast scrap, $15.25 to $15.75; malleable, $15 to $15.50; stove plate, $12 to $12.50.

CINCINNATI.

Increasing Interest in Pig Iron Market—Southern Prices are Firmer.

Office of THE IRON TRADE REVIEW, First National Bank Bldg., Aug. 17.

Pig Iron.—From present indications consumers of iron will be able to get a price for 1910 first quarter or half delivery ere the close of August—not from all the Alabama producers, nor can they select their brand—but it is believed some round tonnages now under consideration for next year will establish the precedent. Talk of blowing in an idle furnace or two this month in the southern district, and the increased consumption, coupled with the comparatively disinterested buying of last week, has, it is believed, stimulated the more aggressive furnacemen to action, which will manifest itself in getting in early on the good list of requirements presented. Inquiries in the hands of brokers for next year will foot up several thousand tons. Detroit, Chicago, St. Louis and central Ohio territory contribute the greater part of these. A Michigan melter would take 7,000 to 8,000 tons of No. 2 foundry analysis iron, 500 tons to be delivered the last quarter, and the balance during 1910, if he could negotiate it to his satisfaction. It is expected that furnaces located in the territory of this consumer will secure this business.

It is believed that there is still a little absolutely spot cash immediate delivery southern iron not subject to brokers' commission circulating at a shade less than $13; and that the market might be accurately gaged for spot and remainder of the year at $13 to $13.50. The quoted price for August and September delivery is $13.50; one Alabama furnace which was willing to deliver iron at the first named figure as late as the 14th, having advanced today to $13.50. Among late inquiries is one from a central Ohio melter for from 2,000 to 5,000 tons, either northern or southern, for the first quarter or half; one from the northwest for about 2,500 tons of foundry iron for remainder of this and part of next year, a south central Ohio tool maker would buy 400 or 500 tons of No. 3 foundry, southern, for the first quarter, another institution in the same locality wants 300 to 400 tons of malleable for the same delivery; and in addition to those named, most sales agencies in this market have a list of inquiries for first quarter and half iron footing from 2,000 to 3,000 tons in small and medium-sized lots. Northern iron is stronger and furnaces in the Hanging Rock district are reducing stocks appreciably.

On northern iron, $15 is being done for any delivery this year, with the quotations varying for next year's delivery from $15.50 for the first quarter and half to $15.75 first quarter and $16 second quarter. No change is to be noted in high silicons, and low grades are scarce, but not in special demand. For prompt shipment and remainder of the third quarter, based on freight rates of $3.25 from Birmingham and $1.20 from the Hanging Rock district, we quote as follows:

Southern foundry No. 1	$16.75 to 17.25
Southern foundry No. 2	16.25 to 16.75
Southern foundry No. 3	15.75 to 16.25
Southern foundry No. 4	15.25 to 15.75
Southern No. 1 soft	16.75 to 17.25
Southern No. 2 soft	16.25 to 16.75
Southern gray forge	14.75 to 15.25
Northern No. 1 foundry	16.70
Northern No. 2 foundry	16.20
Northern No. 3 foundry	15.70
Jackson county 6 per cent silicon	18.70
Jackson county 8 per cent silicon	19.70
Jackson county 10 per cent silicon	20.70

Finished Material—The week opened with very liberal specifications on contracts and a good sprinkling of inquiries. Beams, channels, angles and other structural material are especially strong, and mills are on this class of material six to eight weeks behind on deliveries. Steel bars are firm at the 1.35c Pittsburg price and it is reported this week that the leading interests and the independents are practically of one mind on quotations. There is no contracting and no effort is being made to stimulate this branch of the bsuiness.

Coke—The market continues firm in tone, and movements on contract are quite satisfactory. There is a good run of small shipments in foundry brands, and some inquiries for 1910 prices are received. Reports from the Connellsville region indicate that labor troubles may ultimately constitute a factor in bringing about higher prices. The following table shows range of prices in leading coke producing fields:

	Per Ton.
Wise county furnace coke	$1.60 to 1.85
Wise county foundry coke	2.00 to 2.25
Pocahontas furnace coke	1.75 to 1.85
Pocahontas foundry coke	1.90 to 2.25
Standard Connellsville furnace coke	1.75 to 2.00
Standard Connellsville foundry coke	2.00 to 2.25

Old Material—Sales of scrap during the week have been principally of steel-making kinds, one local concern contracting with a large mill for their supply for the remainder of the year, 500 tons per month at a price reported to be a little better than $14.50.

There is no material change in prices, and dealers are asking the trade, f. o. b. Cincinnati, as follows:

Old No. 1 R. R. wrought net tons	$14.50 to 15.00
No. 1 machinery, net tons	13.50 to 14.00
Old iron rails, gross tons	15.00 to 16.00
Old steel rails (re-rolling) gross tons	14.00 to 14.50
Old short lengths, gross tons	13.50 to 14.00
Old iron axles, net tons	17.00 to 17.50
Heavy melting scrap, gross tons	14.00 to 14.50
Stove plate, net tons	10.50 to 11.00
Heavy turnings, net	9.50 to 10.00
Cast borings, net tons	7.50 to 8.00
Car wheels	14.50 to 15.50

CHICAGO.

Heavy Demand for All Finished Materials Continues.

Office of THE IRON TRADE REVIEW, 1328 Monadnock Block, Aug. 17.

All lines of iron and steel manufacture have experienced a continuation of the heavy demand and inquiry which have been noted for weeks, and the mill managers find themselves more and more seriously confronted with the problem of getting out material in anything like contract time. This is even more keenly felt by the interests dealing in fabricated material, but it is true, to some extent, from one end of the list to the other. The tens of thousands of new cars will require scores of thousands of axles, and the making of the axles will consume billets, which are already extremely scarce. Prices of raw materials are higher, and there is an increasing tendency to withhold quotations for any delivery later than the end of the present year. Furnaces seem to be very indifferent as to next year's sales and prices, and the interest in the first quarter of 1910 seems to be manifested by those who will require iron in that period. With all the satisfaction that comes with a return of prosperity, there is the inevitable "fly in the ointment." The law of compensation is one that works both ways; it can be harmful as well as beneficial. Just now the disquieting thought is the possibility of a car shortage, and this is by no means a remote possibility. With the crops of the country reaching a point beyond all precedent in some cases, and approaching record figures in others, the railroads, even with their augmented rolling stock and motive power, will be taxed to their utmost to handle the enormous volume of freight which the next few months

will produce. It is expected that the tonnage will not fall far short, if at all, of the tremendous proportions of the rush months of 1907, when all records were broken. Whether the equipment of the railroads will be equal to the demand is a serious question. In the south the cotton crop, while not up to the mark, is sufficiently large to be an important factor, and the fact that it is an inflammable commodity, and therefore handled with especial dispatch by the roads, makes the situation of other shippers, among them, of course, pig iron makers, anything but comfortable.

The Inland Steel Co. has placed in operation the fourth galvanizing pot in its sheet mill at Indiana Harbor, Ind., which gives it a daily capacity of 125 tons of galvanized sheets. Four more pots are in course of construction, which, when completed, will bring the daily capacity up to 250 tons.

Pig Iron—The pig iron market at the present time, is very strong, and there is every indication that this condition will continue, and even become more intense. It is the rare exception that a pessimistic opinion of the market is expressed, and it is difficult to understand how any such position can be defended, when the law of cause and effect would seem to be operating toward no other end than a largely increased demand and, consequently, higher prices. During the week, malleable iron makers have been buying pig iron, and there has been a good demand for high silicon irons. Considerable inquiry for both southern and northern iron has been reported, for delivery running into next year. The southern furnaces, as a rule, have not been willing to quote at all largely for next year's delivery. In fact, that is the attitude of all the furnaces, to a great extent. More interest seems to be manifested by the users than by the makers of iron in what the first few months of next year will bring about. Considerable inquiry is reported for 500 and 800-ton lots. One lot of northern No. 2 was sold on a basis equivalent to $13.40, Birmingham, or $17.75, Chicago. An interesting deal made in the past few days, was the sale to the Oliver Chilled Plow Works, South Bend, Ind., by a Michigan interest, of 5,000 tons of charcoal pig iron, at a figure not made public. A sale of 6,000 tons of northern No. 2 was made, the iron to go out of this market; another sale of from 5,000 to 6,000 tons, for a Davenport, Ia., interest, was among recent contracts. A large local interest reported sales on Monday amounting to 2,700 tons, No. 2 foundry, at $17.50, Chicago. Part of the iron was for 1909 delivery and the remainder for 1910. The excessive heat and humidity which have prevailed for many days, have curtailed the production of iron, but with the approach of cooler weather, it is expected that the output will return to a normal basis. Among the local stacks there is much activity, and in two or three weeks the second stack of the Iroquois Iron Co., at South Chicago, will be blown in. It has been out of blast since the fall of 1907. We quote:

Lake Superior charcoal	$19.50 to 20.00
Northern foundry No. 1	18.00 to 18.50
Northern foundry No. 2	17.50 to 18.00
Northern foundry No. 3	17.00 to 17.50
Southern foundry No. 1	18.35
Southern foundry No. 2	17.85
Southern foundry No. 3	17.10
Southern foundry No. 4	16.60
Southern No. 1 soft	17.85
Southern No. 2 soft	17.35
Southern gray forge	15.85
Southern mottled	15.60
Southern silveries, 4 per cent silicon	17.35 to 17.85
Southern silveries, 5 per cent silicon	17.85 to 18.35
Southern silveries, 6 per cent silicon	18.85 to 19.85
Jackson Co. silveries, 6 per cent.	19.90
Jackson Co. silveries, 8 per cent.	20.90
Jackson Co. silveries, 10 per cent	21.90
Malleable Bessemer	17.00 to 17.50
Standard Bessemer	17.65 to 17.90
Alabama basic	16.85 to 17.35

Merchant Pipe and Boiler Tubes—There has been a good demand for the kinds of wrought pipe which come into this market. For some time, there have been rumors of an advance in prices, but up to the present, the rumors have not become facts. We quote, for lap-welded tubes, out of store, 65 off, and for charcoal, 50 off. For mill discounts, see Pittsburg report.

Billets—This market is very strong in tone, and $28 continues to be the price which makers name, but, as previously stated, that price, or any price, is purely nominal, as mills are sold ahead for some time to come. The large number of new cars ordered by the railroads will have a tendency to make the conditions even more acute, since axle-forging plants will find it increasingly difficult to secure the necessary billets.

Merchant Bars—There continues to be an increase in the amount of buying done by the railroads, and much activity is to be noted in this line of manufacture. One large company, having mills in another territory, reports its shipments into the Chicago district, during the month of July, as being the largest month's tonnage in the history of the office. It is beginning to be a matter of no little concern to manufacturers to know where the steel is coming from which will enter into the building of the 25,000 cars which figure in recent orders. At an average of 20 tons to the car, this item alone means a consumption of a half million tons of steel. The Burlington system is figuring on 1,500 more freight cars; the 1,500 box cars for the Chicago Great Western went to the American Car & Foundry Co., as indicated last week. Other orders include 2,000 steel coke cars for the Pennsylvania to the Standard Steel Car Co., and 600 to the Cambria Steel Co. for the same system. The Illinois Tunnel Co. is preparing specifications on 1,000 all-steel narrow-gage freight cars, to be used in its freight tunnels. Prices still reflect the upward tendency of such conditions, and advances are to be noted in several instances. We quote, for Chicago delivery, as follows:

Bar iron, 1.37½c to 1.40c; hard steel bars, 1.40c to 1.45c; soft steel bars and bands, 1.48c to 1.53c, half extras; soft steel angles, less than 3 x 3, 1.58c to 1.63c, half extras; hoops, 1.63c to 1.68c base, full extras; planished or smooth finished tire steel, 1.63c to 1.68c; iron finish, up to 1½ x ½ inch, 1.63c base, tire card; iron finish, 1½ x ½-inch and larger, 1.43c to 1.48c base, steel card; channel for solid rubber tires, ¾ to 1 inch, 1.93c to 1.98c; and 1⅛ inch and larger, 1.83c to 1.88c; smooth finished machinery steel, 1.73c; flat sleigh shoe, 1.53c; toe calk steel, 2.03c; spring steel, 2.08c; crucible spring steel, 2.58c; tool steel, 7c to 9c, with higher prices for special grades. Quotations on shafting are 60 per cent off the list for carload lots, and 55 per cent off for less than carload lots, carload freight allowed to points in base territory. On iron and steel bars from local stocks, we quote as follows: Bar iron, 1.70c to 1.80c, base, full extras; soft steel bars, 1.70c to 1.80c per 100 pounds base, plus half extras; soft steel hoops, 2.20c, full extras.

Plates—In this line there is no exception to the general tendency of hardening prices, caused by an increasing consumption in this and all forms of steel products. The present week sees the more marked advance in prices for material out of store. We quote, for Chicago delivery, as follows:

Tank plates, ¼-inch thick, 6¼ to 100 inches, 1.58c. For extras see Pittsburg report. Store quotations are without change, as follows:

Tank steel, ¼-inch and heavier up to 72 inches wide, 1.80c to 1.90c; from 72 inches wide to 96 inches wide, 1.90c to 2c; 3/16-inch up to and including 60 inches wide, 1.90c to 2c; 72 inches,

2.15c to 2.25c; No. 8 up to 60 inches wide, 1.95c to 2.05c. Flange and head quality, 25c extra.

Sheets—Store prices show some advance this week, with considerable activity manifested in the buying, although mostly on a routine character of business.

For mill prices, see Pittsburg report. Freight to Chicago, 18 cents. We quote store prices at Chicago as follows:

No. 10, 2.10c to 2.20c; No. 12, 2.15c to 2.25c; No. 14, 2.20c to 2.30c; No. 16, 2.30c to 2.40c; Nos. 18-20, 2.50c to 2.55c; Nos. 22-24, 2.55c to 2.60c; No. 26, 2.60c to 2.65c; No. 27, 2.65c to 2.70c; No. 28, 2.75c to 2.80c; No. 30, 3.05c; galvanized sheets, No. 10 to 16, 3c to 3.10c; Nos. 18 and 20, 3.05c to 3.15c; Nos. 22 to 24, 3.20c to 3.25c; No. 26, 3.40c to 3.45c; No. 27, 3.60c to 3.65c; No. 28, 3.80c to 3.90c; No. 30, 4.20c to 4.50c.

Structural Material—The demand for structural shapes continues very strong, and mills are quoting on a basis of from eight to 10 weeks delivery. The C., B. & Q. R. R. placed orders during the week for 1,400 tons of miscellaneous material for bridges, etc. The American Bridge Co. secured the contract for a theater at Grand avenue and Olive street, St. Louis, requiring 257 tons. The Russell Creek, Ia., viaduct, for the C., M. & St. P., 284 feet long, and taking 250 tons, went to the Toledo & Massillon Bridge Co. The Morava Construction Co. took the contract for a power house at Laporte, Ind., 100 tons. The C. & N. W. Ry. is figuring on additional material for the proposed approach to its new depot in this city. The increase will amount to 4,000 tons, making a total of about 44,000 tons for that structure. At Gary, the Steel Corporation will use some 4,000 tons of additional material in the erection of a by-product gas building, a stripper building, and numerous smaller structures. The Brooks estate is figuring on the erection of a large mercantile building on Monroe street. The contract for the new Harris bank, mentioned last week, will be let in about six weeks, and that for the new Sherman House, 4,812 tons, in about 10 days.

We quote mill prices for structural shapes, Chicago delivery, as follows:

Beams and channels, 15-inch and under, 1.58c to 1.63c. For extras see Pittsburg report.

Local store prices are as follows:

All angles, 3 inches and larger, including 6 inches, $1.80 per 100 pounds; angles over 6 inches, $1.90 per 100 pounds base; 3 to 15 inches, inclusive, $1.80 per 100 pounds base; channels, 3 inches and larger, $1.80 per 100 pounds base.

Rails and Track Supplies—About 15,000 tons of standard section rails were sold in this market the past week in miscellaneous lots to various railroads. There is a heavy demand for all kinds of track supplies. The inquiry for 15,000 tons of tie plates, mentioned in this report last week, was from one of the leading systems of the country, and was for delivery during the present year. The leading interest was unable to figure on such early delivery, and quoted on only a portion of the order.

See Pittsburg report for prices on standard sections. On light rails, Chicago delivery, we quote as follows:

Light rails, 40 and 45-pound, $26; 30 and 35-pound, $26.75; 16, 20 and 25-pound, $27; 12-pound, $28. In lots of 250 to 500 tons a reduction of 60 cents a ton from these prices is made; lots of 500 tons and up carry a reduction of $1 a ton. Track supplies, f. o. b. Joliet, angle bars, 1.50c to 1.60c; railroad spikes, 1.75c to 1.85c; smaller size spikes, 1.85c to 1.95c base; track bolts, with square nuts, 2.15c to 2.20c; with hexagon nuts, 2.30c to 2.40c.

Cast Iron Pipe—No large contracts have been placed during the week, as it is getting a little late in the year for large municipal lettings, but the volume of small business keeps up to the average. Prices are without change, as follows: Four-inch water pipe, $27.50; 6 to 14 inches, $26.50; larger sizes, $25.50; gas pipe, $1 a ton higher.

Wire Products—Much of the old business has been gotten out of the way, and new specifications are coming along at a satisfactory rate. Some of the activity is due to a fear of a car shortage, and some dealers are anticipating their requirements and placing orders ahead, so as not to be delayed in the matter of shipments. It is expected that when the farmers get their crops disposed of they will turn their attention to improvements; and, among other things, will be in the market for large quantities of barbed and other wire. We quote, Chicago delivery, as follows:

Wire nails, jobbers' car lots, $1.98; retailers' carload lots, $2.03; retailers, less than carload lots, $2.13; painted barb wire, jobbers' carload lots, $1.98; retailers, carload lots, $2.03, with 30c for galvanizing; plain wire to jobbers, carload lots, $1.78; staples, $1.98.

Old Material—There is a slight further advance to be noted this week in the prices of many of the lines of scrap material. Some broadening in the inquiry for malleable scrap is reported, and there has been also a good inquiry for draw-bars, knuckles and springs. We quote:

Old car wheels	16.25 to 16.50
Old iron rails	18.75 to 19.00
Rerolling rails (4 ft. and over)	16.50 to 16.75
Old steel rails (2 ft. and under)	16.25 to 16.50
Light section relayers, 45 lbs. and under subject to inspection	21.00 to 23.00
Relaying rails, subject to inspection	22.50 to 23.50
Frogs, switches and guards	15.25 to 15.50
Heavy melting steel	15.25 to 15.50

We quote, net tons, as follows:

No. 1 R. R. wrought	$15.00 to 15.25
No. 2 R. R. wrought	14.00 to 14.25
Arch bars and transoms	17.25 to 17.50
Knucklers, couplers and springs	14.25 to 14.50
Shafting	16.50 to 17.00
Iron car axles	20.00 to 20.25
Steel car axles	19.00 to 19.25
Locomotive tires	15.50 to 15.75
Dealers' forge	12.50 to 12.75
Pipes and flues	11.25 to 11.50
No. 1 cast, 150 lbs. and less	14.25 to 14.50
No. 1 busheling	12.50 to 12.75
No. 2 busheling	9.00 to 9.25
No. 1 boiler cut	11.25 to 11.50
Boiler punchings	13.75 to 14.00
Cast and mixed borings	6.50 to 7.00
Machine shop turnings	8.75 to 9.00
Railroad malleable	14.20 to 14.75
Agricultural malleable	11.50 to 12.00
Stove plate and light-cast scrap	12.00 to 12.25
Angle bars, splices, etc. (iron)	16.00 to 16.50

CLEVELAND.

Heavy Inquiry for Basic—Bolt and Wire Business is Prosperous.

Office of THE IRON TRADE REVIEW, Browning Building, Aug. 17.

Iron Ore—Several large interests have sold practically all of their ore for the present season, and there is already some talk of advancing prices next year. Shipments of ore continue to be very heavy, and it is expected that August will make a new record. On base ores with the guarantee of 55 per cent on old range and Mesabi Bessemer, and 51½ per cent on old range and Mesabi non-Bessemer, we quote as follows: Old range Bessemer, $4.50; Mesabi Bessemer, $4.25; old range non-Bessemer, $3.70; Mesabi non-Bessemer, $3.50.

Pig Iron—The Toledo Furnace Co. has blown out its B stack for relining, and has blown in its A stack, which had been idle for about a year. This company is well supplied with orders for next year, and is not at present an active factor in the market. Corrigan, McKinney & Co. hope to have their new Cleveland furnace in blast soon after the first of January. The Cleveland Furnace Co. has not yet decided when it will blow in its second stack, which has been ready to blow in since last March. Considerable interest has been manifested in the trade as to when Claire furnace will be blown in, but M. A. Hanna & Co. are not yet ready to announce their plans as to this stack. There has been a heavy inquiry for foundry

iron from consumers. Brokers have been asking for quotations on large tonnages of basic for delivery during the first half of next year, on which the usual quotation is $16 valley furnace. Some interests are not disposed to sell to brokers, who have, however, bought a few thousand tons for next year at a price somewhat above $16. Sales of foundry iron by local interests include some which are to be shipped long distances, indicating that furnaces which usually furnish iron for the buyers in question are well supplied with orders at present. The minimum quotations by Cleveland furnaces are $16 valley for No. 2 prompt for outside delivery, and $16.50 delivered in Cleveland, while for first quarter $16.50 at the furnace is asked for outside delivery, and $16.75 delivered in the city. The principal cast iron pipe interest has been in the market, but its views of prices do not seem to coincide with those of the sellers, who are at present very firm in their quotations. We quote delivered in Cleveland as follows:

No. 1 foundry	$17.00 to 17.25
No. 2 foundry	16.50 to 16.75
No. 3 foundry	16.25 to 16.50
No. 2 southern	17.35
Gray forge	15.00 to 15.50
Bessemer	16.25 to 16.50
Lake Superior charcoal	19.50 to 20.00
Jackson Co. 8 per cent silvery	20.05

Coke—There is not any great activity, but prices continue firm. We quote spot furnace coke at $1.60 to $1.65 at the ovens, and at $1.85 to $1.90 for delivery over a period of six months. High grade Connellsville foundry coke is held at $2 to $2.25 for immediate shipment, and $2.25 to $2.50 on contract running through the first half of next year, while somewhat lower quotations are made for delivery during the last quarter of this year.

Finished Materials—The demand for all kinds of finished materials is excellent and both mills and jobbers are doing a large business. The minimum price on steel bars is now 1.35c, and mills are not showing any anxiety to take orders. The Cleveland Steel Co. has advanced its quotations on plates to 1.45c. Eastern Pennsylvania steel companies are selling some plates in Ohio territory at a premium of from $1 to $3 per ton, owing to the slowness of delivery of Pittsburg and Ohio plants. The bar iron market is only in fair condition, and local mills are not overburdened with orders. There is great activity in bolts and nuts, and one Cleveland interest reports that its business for July was the heaviest in the history of the company. Jobbers are doing business in structural material, but no large projects are pending.

PHILADELPHIA.

Pig Iron More Quiet—New Scrap Buying Plan Works Well.

Aug. 17.

Pig Iron—Greatly to the relief of most producers in this section, the market has assumed a more quiet tone and current selling is decidedly more limited. There is still an exceedingly brisk demand for foundry iron and numerous blocks ranging up to 2,000 tons are being taken for delivery over the remainder of the year, even at the higher prices now prevailing, but aside from the considerable tonnage aggregated by this business, bookings of the past week have not been large. Virginia furnaces, now selling on a basis of $14.50 to $15, furnace, have been considerable sellers of foundry iron, as producers in this immediate neighborhood are so well sold up for the next three or four months that they are trying merely to care for their old customers and are sometimes unable to do this. One large maker is holding No. 2X at $17 furnace, and another slightly higher; $16.50 seems the minimum for any make. There will be some early additions to active capacity; Warwick is shortly to blow in a third stack, Marshall furnace will start about Sept. 1, and Belfont is also to go in soon, but this additional tonnage has been largely anticipated by sellers, and a number of interests are behind on shipments of basic and pipe irons. Pittsburg product is beginning to come into this territory and the movement is expected to increase. A steel plant in this territory has bought 2,000 tons of standard low phosphorus iron at full prices, but no further basic transactions of importance are noted. The Isthmian Canal Commission will open bids Sept. 7 on 1,200 tons of pig iron and a quantity of ferro-manganese. We quote, delivery at eastern Pennsylvania plants over the balance of the year, as follows:

No. 1X foundry	$17.75 to 18.25
No. 2X foundry	17.25 to 17.75
No. 2 plain	16.75 to 17.25
Standard gray forge	16.00 to 16.50
Basic	17.00 to 17.50
Low phosphorus	20.00 to 20.50
No. 2 Birmingham	16.25 to 16.75
No. 2X Virginia	17.00 to 17.50
No. 2 plain Virginia	16.50 to 17.00

Finished Materials—The situation is quiet, but strong. One eastern mill, which up to a week ago was quoting 1.35c Pittsburg, on shapes and plates, has withdrawn those figures and the minimum is now 1.40c, equivalent to 1.55c Philadelphia territory, with most interests quoting $1 per ton higher on small lots. Current sales are small for the reason that mills are well sold up to the end of the year or as far ahead as they will quote, and have not opened their books for next year's business. One of the big independents is sold up on bars to Jan. 1. The car and locomotive orders placed during the week have resulted in considerable plate and shape business for concerns in this territory. Structural sales are light, the only one of importance noted being 500 tons, which the Bethlehem Steel Co. will supply for the American National Bank building at Richmond, Va. The Virginia Bridge & Iron Co. and the Pennsylvania Steel Co. together will furnish 4,000 tons of steel for bridge work on the Winston & Salem railroad, and the latter has the contract for four small bridges to go to Cuba. The expected Reading tonnage has not yet developed, but is about ready for bids; a new office building on Spring Garden street is included. We quote: Structural shapes and plates, 1.55c to 1.60c; steel bars, 1.50c to 1.55c; bar iron, 1.45c to 1.50c; sheets, No. 28, 2.80c.

Old Materials—The market for heavy melting steel is firm at $17, delivered, and moderate amounts are being secured at this figure. There have been no further developments in connection with the joint buying arrangement noted a week ago, and the new plan seems to be operating successfully, despite the scattered opposition. The steel scrap in the August railway lists is reported to have been taken in about equal amounts by the joint purchaser and outside interests; on a part of this tonnage the price was well above the figure given above. No importations of scrap have come to light so far, but the movement from Mexico, Cuba, South America and the Isthmus is expected to set in shortly. Canadian interests will probably take all produced in that country and prices abroad are now too high to permit shipments of dependable old material, even without allowing a profit. We quote, gross tons, eastern Pennsylvania delivery, as follows:

Old steel rails (rerolling)	$18.00 to 18.50
No. 1 steel scrap	17.00 to 17.50
Old steel axles	22.50 to 23.00
Old iron axles	24.50 to 25.00
Old iron rails	20.00 to 21.00
Old car wheels	16.00 to 16.50
Choice scrap R. R. No. 1. wrought	19.50 to 20.00
No. 1 yard scrap	18.00 to 18.50
Machinery scrap	15.75 to 16.25
Low phosphorus scrap	20.00 to 20.50
Wrought iron pipe	16.50 to 17.00
No. 1 forge fire scrap	15.00 to 15.50
No. 2 forge fire scrap, ordinary	9.50 to 10.00
Wrought turnings	14.00 to 14.50
Axle turnings, heavy	14.00 to 15.00
Cast borings	11.75 to 12.25
Stove plates	13.50 to 14.00

ST. LOUIS.

Aug. 16.

Pig Iron.—Two thousand tons of basic iron was sold by a Missouri dealer to an Iowa foundry for delivery over the latter part of the present year. Orders aggregating probably 2,000 tons of southern iron were booked for shipment over the last four months, with prices firm for that delivery at $13.50, Birmingham, for No. 2. One large furnace interest is holding firm for $14 for last quarter delivery, but no orders are reported as having been taken on this basis.

Northern iron is firm at from $15.50 to $16, Ohio furnaces, for the first quarter delivery, and at $16 flat for the second quarter of next year. Inquiries for northern iron dropped off some last week, but one dealer in the St. Louis territory reports a sale of 600 tons. A sale of 1,000 tons of malleable is reported to be within 24 hours of consummation. The market is firm, and buyers are out with a large number of inquiries. Another order for 1,000 tons probably will be booked within a week. Our quotations, delivered, to which the freight of $3.75 from Birmingham has been added, follow:

No. 1 southern	$17.25 to 17.75
No. 2 southern	16.75 to 17.25
No. 3 southern	16.25 to 16.75
No. 4 southern	15.75 to 16.00

Coke.—The market for coke is stronger than for the previous week, with the best-selected 72-hour Connellsville foundry grade bringing from $2.15 to $2.50, and the best-selected 48-hour furnace quality bringing from $1.75 to $2. The lower prices are for immediate deliveries and the higher one for future shipment. Virginia and West Virginia coke is offered at $2.25 for shipment over the remainder of the year, and at $2.35 for next year. The freight to East St. Louis and St. Louis is $2.80, and $2.70 from the Virginia fields when shipment is destined beyond St. Louis.

Finished Material.—Sales of structural iron are somewhat at a standstill, but with the contracts for the stone work on the new $3,500,000 free bridge that is to span the Mississippi river and the new municipal court building having been let, besides several new store and office buildings under contemplation, dealers are becoming optimistic.

Old Material.—Scrap iron prices remain firm as follows:

Cast iron borings, free from foreign material, net tons	$ 5.00 to 5.50
Steel axle turnings, gross tons	11.00 to 12.00
Steel railroad axles, net tons	17.00 to 18.00
Iron railroad axles, net tons	18.50 to 19.50
Miscellaneous steel scrap, gross tons	10.00 to 11.00
Old car wheels, gross tons	15.00 to 15.50
No. 1 railroad cast scrap, net tons	11.00 to 11.50
Heavy machinery cast, net tons	13.00 to 13.50
Stove plate and light cast, net tons	10.00 to 10.50
Sheet iron, net tons, uncut	4.00 to 5.00
No. 1 railroad wrought, net tons	12.00 to 13.00
Railroad malleable, net tons	12.00 to 12.50
Heavy melting steel, net tons	11.00 to 12.00
Relaying rails, net tons	17.00 to 18.00

The Domhoff & Joyce Co., St. Louis, has been appointed exclusive western sales agents for the Stonega Coke & Coal Co., of Stonega, Va. The company is now, and for some time has been, exclusive agent in Cincinnati and the Ohio territory and Chicago and the Northwestern territory for the Stonega company. W. G. Maguire is the St. Louis sales agent for the Domhoff & Joyce Co.

BUFFALO.

Pig Iron Shows Little Change—Numerous Building Projects.

Office of THE IRON TRADE REVIEW, 932 Ellicott Square, Aug. 17.

Pig Iron—Little change has taken place in the pig iron market at this point in the past week, and while the market has apparently not lost any of its strength, it has not made any material progress. No changes in prices occurred. A little more talk is heard about covering for the early part of 1910, but little selling for that period has taken place. Shortage of cars is reported from some quarters. So far this condition has not reached a serious stage. There is a good call for silicon iron. On 6 per cent silicon, Jackson county, Ohio, iron a price of $19.85 is quoted, and on 8 per cent silicon, $20.85; deliveries during balance of year. On local iron, prompt deliveries, we quote, f. o. b. Buffalo, as follows:

No. 1X foundry	$16 25 to 16.75
No. 2X foundry	15.75 to 16.25
No. 2 plain	15.25 to 15.75
No. 3X foundry	15.00 to 15.25
Malleable Bessemer	15.50 to 16.00
Gray forge	15.00 to 15.25
Charcoal	19.50 to 20.50

Finished Products—Although leading mill interests here are over sold for two months, specifications on new construction come along in fair numbers. Two of the leading interests have advanced prices $1 a ton on plates, shapes and bars. The American Bridge Co. has been awarded a contract by the American Laundry Machinery Co. for its new factory at Rochester, N. Y. The plans call for 300 tons of fabricated structurals. The structural contract for building a refinery will be let this week by the Spencer-Kellogg Co. Among the structures planned are a department store building to cost $150,000, to be built by the Buffalo Realty Co. Architect will receive bids until noon, Aug. 17, on both general and separate contracts; the building will be of steel and stone construction; town hall to cost $40,000, structural and ornamental iron and pressed brick construction, Belmont, N. Y.; hotel to cost $25,000, structural iron and brick construction, Enoch Realty Co., Buffalo; laboratory, reinforced concrete and structural iron, Niagara Electric Chemical Co., Niagara Falls, N. Y.; factory, reinforced concrete, owner's name withheld, Elmira Heights, N. Y.; school to cost $150,000, Peekskill, N. Y., architect, E. E. Joralemon, Niagara Falls, N. Y.; plant for the manufacture of plumbing supplies, structural iron, brick and concrete construction, machine building, foundry and office, Climax Specialty Co., Seneca Falls, N. Y.; laundry and power house, reinforced concrete and structural iron, Cortland County Hospital, Cortland, N. Y.; gymnasium building, structural iron and brick, Linn, N. Y.; automobile factory for the DeSchaum-Hornell Motor Co., 18 Court street, Buffalo, plant to be buil at Hornell, N. Y. The lowest bidder on this construction was Fahy & Prentiss, Hornell, at $26,700, and contract will soon be awarded. The general contract for building a $25,000 hotel for H. S. Sartwell, of Olean, N. Y., has been let to Dean & Havens, same city.

NEW YORK.

Many Inquiries for Moderate Tonnages of Pig Iron—Structural Lettings.

Office of THE IRON TRADE REVIEW, Room 1005, No. 90 West St., Aug. 17.

Pig Iron—There is still an absence of large inquiries, but a continuance of calls for lots ranging up to 1,000 tons is resulting in a very comfortable volume of business, fully as large, in fact, as could be expected in view of the enormous buying earlier in the summer, and the extent to which furnaces are sold up. Prices are well maintained at the level recently reached, as high as $17 furnace prevailing on occasional lots of No. 2X foundry. Virginia producers have been the most active during the past week, disposing of a large tonnage on the basis of $14.50 furnace, delivery over the remainder of the year, and in connection with these sales taking on a limited tonnage for first quarter at a premium of $1.50; there are still heavy accumulations in that district. The inquiry from malleable iron foundries for deliveries running

through the first half has reached a considerable figure, but furnaces are still unwilling to quote; there is little early delivery malleable to be had. Two or three steel mills have not yet secured their much-needed supplies of prompt basic but this will probably be placed shortly and will aggregate a moderate tonnage. About $17.50, delivered, seems to be the minimum price, but the metal is so hard to obtain that each transaction makes its own figure. There has been some inquiry with a view to importing British iron suitable to replace basic in this territory, but nothing sufficiently close in analysis can be obtained. Middlesbrough stocks are now about 260,000 tons. The New England market is more quiet, but the Buffalo producers are somewhat more firm. We quote, delivery at New York tidewater, during the remainder of the year:

Northern foundry No. 1	$17.75 to 18.25
No. 2X foundry	17.25 to 17.75
No. 2 plain	16.75 to 17.25
No. 2 southern foundry	16.75 to 17.25
Malleable	17.25 to 17.75
Gray forge	16.25 to 16.75

Ferro-Alloys—Ferro-manganese inquiries continue to accumulate and probably aggregate 4,000 tons, but little business is being closed. The market level seems to be about $41, seaboard, or possibly slightly less. For first half shipment holding prices range up to $45. Since the brisk buying movement of two weeks ago, when Corporation subsidiaries and other large steel-making interests took on a large tonnage, there has been little activity in ferro-silicon. Some recent business was taken subject to cancellation in case the duty increased, and the situation has not yet adjusted itself completely to the new tariff conditions. Considerable selling of ferro-phosphorus is noted and the price is advancing. One effect of the tariff has been to increase sales of fluor-spar in this territory; we learn of several moderate lots being placed at $5 per ton, mine.

Finished Materials—Structural lettings during the first two weeks of August were in the neighborhood of 50,000 tons, of which only about 5,000 tons went to the leading interest, but bookings of the month promise to be somewhat in excess of 100,000 tons. Independent concerns have been especially aggressive of late; one in particular has recently booked over 30,000 tons, and it is evident that sufficient business will soon be in hand to run these shops full to Jan. 1. There is considerable structural work in prospect and the railroads are expected to do further buying about the end of September. It would not be surprising if several systems, among them the Burlington, the Atchison and the St. Paul, would materially increase the tonnage of pending steel contracts. Prices are firming up and a premium of $2 per ton is occasionally paid for immediate deliveries.

In this immediate territory structural bookings have been small. J. C. Jones, of Philadelphia, will supply 600 tons of steel for the Smith Mfg. Co. plant at Watcessing, N. J., which has been up for two years; the Prince Iron Works have a 500-ton contract for bridges on the Long Island Motor Parkway, the steel for which will be furnished by the Eastern Steel Co.; Ravitch Bros. have taken two or three local apartment houses, requiring between 2,000 and 2,500 tons of steel; and a telephone building at Springfield, Mass., 250 tons, has gone to the Berlin Construction Co. The McClintic-Marshall Construction Co. has taken 200 tons of bridges for the Lehigh, 700 tons of mill buildings for the Southern Iron & Steel Co. at Alabama City, and 200 tons for mill buildings for C. E. & E. P. Townsend at Falston, Pa. The American Bridge Co. will supply 650 tons for the skull cracker building at Gary, and the Pullman shop contract, requiring about 10,000 tons of steel, has been awarded to the Kenwood Bridge Co. Bids go in late this month on a post office and court house at New Orleans, requiring 3,000 tons. The steel contract for the armory building in this city has not been placed.

A brisk demand for billets continues and we note several sales of special analysis aggregating 1,400 tons. An inquiry is current for 5,000 tons of 30-pound rails for shipment to India, but the order will probably be placed abroad. A 1,200-ton sheet piling order will be closed at St. Louis in the early future. We quote:

Angles, 3 to 6 inches x ¼-inch and heavier 1.56c; beams, 3 to 15 inches, 1.56c; tees, 3 x ¼-inch and heavier, 1.56c; plates, carloads, tank, 1.56c; marine boiler, 1.86c; bar iron, 1.45c to 1.50c; soft steel bars, 1.51c; sheets, No. 28, black, 2.56c.

Cast Iron Pipe—A decided improvement in demand is to be noted in Greater New York and in the New England district. In addition to the letting of 5,600 tons on Wednesday, New York City is shortly to advertise for bids on about 14,000 tons of heavy pipe for its high pressure service, mostly 6 to 24-inch, this letting being practically a duplicate of that held early in June; within 60 days another lot of about the same size, also high pressure, will be advertised for, making the total tonnage to be bought only a little less than 35,000. The large New Bedford letting is scheduled for today. Springfield, Mass., is to buy 400 tons of small pipe, Hadley has a small letting soon and several other municipalities are inquiring. No awards have been announced in connection with recent lettings at Bedford, 650 tons for the People's Gas & Elec. Co., or at Hazelton, 600 tons, for the Lehigh Valley. Prices show considerable improvement.

Old Materials—There is a moderate demand from rolling mills, but current selling is light and the market is featureless. Efforts at the importation of British and European scrap are meeting with little success and it is not anticipated that any important import movement will develop aside from the bringing in of some scrap from South American countries. We quote, gross tons, New York tidewater delivery, as follows:

Old steel rails (rerolling)	$14.50 to 15.00
Relaying rails	19.00 to 19.50
Old car wheels	13.50 to 14.00
Old iron car axles	21.50 to 22.00
Old steel car axles	20.00 to 20.50
Heavy melting steel	14.00 to 14.50
No. 1 railroad wrought	15.00 to 15.50
Iron track scrap	13.00 to 13.50
Wrought pipe	13.00 to 13.50
Cast borings	8.00 to 8.50
Wrought turnings	10.00 to 10.50
Heavy cast scrap	12.50 to 13.00
Railroad malleable	11.50 to 12.00
Stove plate	10.00 to 10.50
Grate bars	10.50 to 11.00

BRITISH IRON MARKET.

Upward Tendency Maintained—Influence of American Reports.

Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,
Birmingham, England, Aug. 7.

In the British iron trade during the past week, the upward tendency which commenced a week ago has been maintained, and the general belief is held that this represents a genuine revival. In the Cleveland market, the same optimistic feeling is apparent, and the view is generally held that favorable reports from America are exercising a beneficial influence in this country, in the same way that the financial crisis of two years ago acted adversely on British markets. The present influence is especially exerted in the case of speculators. Another favorable circumstance is the settlement of the coal crisis, which has been a source of considerable anxiety during the last week or two. Shipments of pig have been rather better and although Connal's stores continue to increase, the additions are scarcely so rapid. In spite of the maintenance of the improved tone, buying is by no means brisk,

and many likely purchasers are suspicious as to the reliability of the revival. Cleveland warrants have reached the highest point this year, quotations being 49s 9d ($12.18) for cash, with an increase of 3d per ton for delivery in the near future. The east coast hematite trade has failed to show any response to the upward movement. Conditions in this department are identical with those of a week ago, and prices remain at 55s ($13.46). The tone of the Midland market on Thursday was confident, and conditions would seem to be more satisfactory than for some time past. Several Derbyshire firms have advanced their prices with a view to prohibiting further contracts. Offers which were available on condition of some concession being made in prices have been rejected. The healthy tone in this district is attributed to the better reports from Cleveland, and indirectly to the influence which America is exerting as a result of the improving conditions on the other side of the Atlantic.

METAL MARKETS.

CHICAGO.

Aug. 17.

Metals. —Trade has been fairly good in the metals market, the past week, and there has been quite a little buying of copper for future delivery. Some of the larger consumers had bought ahead as far as August, and are now buying for September and October. There is also a very fair amount of buying of spot stuff, in small lots. Lead is strong, with no very apparent cause in sight. Antimony is very inactive. Prices for the active metals are higher. We quote as follows:

Lake copper, carload lots, 13⅝c to 13¾c; casting copper, 13¼c; smaller lots, ¼c to ¾c higher. Spelter, 5.70c to 5.75c; lead, desilverized, 4.40c to 4.45c in 50-ton lots; corroding, 2¼c per 100 pounds higher; sheet zinc, $7.50 list f. o. b. LaSalle in car lots of 600-pound casks; pig tin, 31½c to 32c; Cookson's antimony, 10½c; other grades, 9¾c to 10¼c.

Old Metals.—Scarcely anything has been doing in the old metal market, since last report. Prices show no change. We quote:

Copper wire, 11¾ to 12c; heavy copper, 11½c to 11¾c; light copper, 10¾c to 11c; heavy red brass, 10¾c to 11c; heavy yellow brass, 8½c; light brass, 6¼c; No. 1 red brass borings, 9c to 9¼c; No. 1 yellow brass borings, 7¾c; brass clippings, 8¼c; tea lead 3.40c; lead scrap, 3.80c; zinc, 3.60c; tin pipe, 24½c; tin foil, 23c; pewter, 17½c; electrotype plates, free from wood, 4c; electrotype dross, 2.90c; stereotype plates, 4⅛c; stereotype dross, 3c; prime slab zinc dross, $60 per ton.

NEW YORK.

Aug. 17.

Copper—Following the publication of an extremely favorable report by the Copper Producers' Association, the past week has witnessed an active market, a heavy demand being noted from domestic consumers and brisk buying being done by European interests. Under this impetus, prices have naturally advanced and local dealers are now quoting Lake at 13¼c to 13½c, electrolytic at 13⅛c to 13¼c; casting, 12⅞c to 13c. On the New York Metal Exchange, standard metal is quoted:

Spot	12.65c to 12.90c
August	12.65c to 12.90c
September	12.75c to 12.80c
October	12.82c to 12.90c
November	12.85c to 12.95c
December	12.95c to 13.00c

Pig Tin—There has been considerable speculative dealing during the week, as a result of which prices have advanced slightly in spite of the almost complete absence of consumptive business. The current level is 30c, varying slightly with delivery.

Pig Lead—A vigorous demand, apparently to meet actual requirements, has given the market a stronger tone and has brought about a steady advance. Spot metal is steady at 4.37½c to 4.45c, New York.

Spelter—The advancing ore market and inability to obtain supplies have sent up prices sharply. We quote, New York delivery, at 5.65c to 5.85c.

Antimony—Limited business is being done, as the market has not yet found itself since the tariff became effective. We quote: Cookson's, 8½c; Hallett's, 8¼c; other brands, 7¾c to 8c.

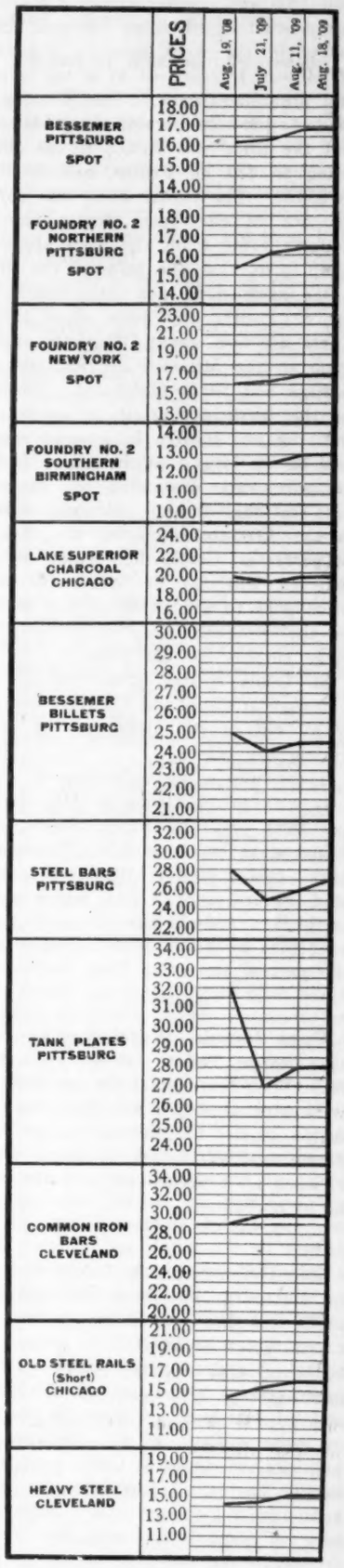
ST. LOUIS.

Prosperity Comes to Zinc Industry with Placing of Duty.

August 16.

Lead and Zinc.—It is estimated by mine inspectors that from 50 to 75 mines have resumed operations in the Missouri-Kansas-Oklahoma district since the tariff on zinc was signed, and signs of prosperity almost unprecedented are noticeable everywhere. The total lead and zinc ore sold in the district last week aggregated $334,779. Despite the heavy selling, the base price

PRICE CHART.



for zinc ore was higher than it has been for several years. The best price obtained for 60 per cent ore was $50.50, and dealers believe that the year 1909 will register a record breaking production. Bidding for zinc ore earlier in the week was on a basis of $47—an increase of $1 a ton over the preceding week. On Thursday the competition became very brisk, and the price was forced up to $49, rising to $50 on Friday, and finally to $50.50. The higher price was paid for ore in the West Joplin camp. Reports came from the West Joplin camp, also, that the bulk of the ore which assayed 62 per cent was sold for $52.50—the top price since 1907. There are now about 700 mines operating in the Missouri district, 100 in Kansas and 50 in Oklahoma. Owing to the brisk selling, it is predicted that the turn-in for the present week will be the largest of the year. Higher prices are demanded for several bins in the district. Among these is the 1,600-ton heap on the Aylor property at Carterville, which it is believed will not be sold until the price goes to $56. One of the mines in the Peacock camp is holding a large surplus for $55 base.

St. Louis spelter quotations closed Saturday at $5.65, which buyers assert, is all out of proportion to the prevailing ore prices.

There was a big unloading of lead ore, with prices strong at $58 for 80 per cent ore, and extra choice lots bringing as much as $59. Producers took encouragement from the pig lead market at St. Louis, which went to $4.25 and $4.30 Saturday. A base of $60 is believed to be in sight for the present week.

Open Hearths Working.—The two open-hearth Talbot furnaces of the New York State Steel Co., at Buffalo, were started Aug. 15. They have a daily capacity of 250 tons each. The bloom mill will be started about Sept. 1, when all branches of the plant will be in operation.

The Union Sheet & Tin Plate Co., of Pittsburg, has been incorporated under the laws of Delaware with a capital stock of $800,000 to engage in the sheet and tin plate business. The incorporators are Frank M. Stephenson, of Pittsburg; William D. Parks, of Asbury Park, N. J.; George J. Stanford, of Milford, Conn., and Laken C. Taylor, of Cambridge, O. The company will engage in the manufacture of special tin mill and sheet products.

SEVEN MILLION MARK

Will Probably Be Passed in Ore Shipments This Month—Rates May Advance.

The lake trade certainly looks good at present. It has the aroma of burning money about it. Capt. John Mitchell, one of the hardest headed men in the business, predicts a dollar ore rate before the season is over. He bases it upon the brisk demand for tonnage, the increasing delays in port, the scarcity of cars, the big grain crop, the heavy ore movement and the certain demand for coal in the northwest—all contributing causes to a stiff freight rate. Probably under normal conditions they would make the going rate $1; they may really make the rate $1 for a few imperative and belated cargoes as it is; but as for establishing the rate at that figure for the fall months, vessel owners as a rule do not share Capt. Mitchell's belief. The lake trade has changed of late years. Practically all ore is moved by contract vessels. Of course a sensible amount is moved otherwise, but it is usually moved in vessels that are owned by men that have contract tonnage and it has not been difficult for the shippers to persuade them to take late cargoes at the contract rate. The reason is obvious. The shippers are not in business for a day or a year. They may have more patronage to distribute next year than they ever had before and the vessel owner will naturally want his share of it under contract. If shippers do not want to pay more than the contract rate this year, they will probably not be forced to. This is not saying, however, that ore may not be moved at a higher rate this fall. It is the vessel owners' own fault that the rate fell from 75 cents to 65 cents. They could have had 75 as easily as 65 during 1908, and cutting the rate did not move a single pound more ore that year. Independent interests that need ore may have to pay more than 65 cents to get it this fall, but the big shippers are doubtless well protected.

The fall season, however, is going to be lively and everyone will have all that he can reasonably attend to. Grain will doubtless pay a premium to be moved. There is not a great deal of tonnage to be had. A fair movement of grain would take care of all of it. A brisk movement of grain will make a sharp demand for tonnage. Vessel owners are already declining offers of 2½ cents and 2¾ cents for storage and will probably be able to get 3 cents without trouble.

Coal is now moving fairly well, though it is not getting away from upper lake docks as fast as the vessel owners would like it. There is considerable congestion at the coal receiving docks and delays are common.

It is predicted that August will prove to be the record-breaking month in the history of the trade and yet there was one week in that month in which there was little doing owing to inclement weather. Ore shipments for August will probably for the first time pass the 7,000,000 mark. This is phenomenal business. It was not until 1889 that the ore shipments reached 7,000,000 tons in any one year.

CARNEGIE ACTIVITY INCREASING.

Orders were issued the past week for the Columbus plant of the Carnegie Steel Co. to be placed in operation as soon as possible. No date has been fixed for the resumption, but, as it will require several weeks to get the plant in readiness, it is not likely that any steel will be made there until about Sept. 1 or later. The Columbus works has been idle for about two years, but during the past month it has been gradually undergoing repairs and changes preparatory to its resumption when ordered. The plant consists of two blast furnaces, two Bessemer converters, blooming and sheet bar and small billet mills. With it in operation, the Carnegie Steel Co. will have running all of its 23 rolling mills and steel works, including the Schoen steel wheel plant, for the first time in about two years. It now has 51 out of 59 blast furnaces blowing and with the two Columbus stacks, the Edith and Neville Island furnaces, which are being prepared for activity, the company will soon have running 55 out of 50 furnaces. The idle furnaces will then be the isolated Zanesville, Steubenville and Niles stacks, together with one Carrie, which is out for repairs.

Furnace Contract Awarded.—The William B. Pollock Co., Youngstown, O., has been awarded the contract for building the new No. 3 stack which the Youngstown Sheet & Tube Co. will shortly erect at its plant. The new furnace will be of the large type of Nos. 1 and 2 recently completed and will have a daily capacity of about 500 tons.

The Campbell Iron Co. advises that it is now located in its new address, 809-819 Cass avenue, St. Louis, where it carries blacksmiths', wagon makers' and horse shoers' supplies.

LARGE INCREASES

IN IMPORTS OF CUBAN ORE ARE EXPECTED

Under the New Tariff Law—Important Commercial Agreements Will Soon be Terminated.

Washington, D. C., Aug. 16.—In the light of the final result with respect to the iron ore duties in the new tariff, fixing the rate of 15 cents per ton, and considering the vigorous protest which was carried to the committees of congress and to President Taft against reducing the iron ore duties below 25 cents a ton, it will certainly be a matter of considerable interest to the iron and steel trade as to what effect the sweeping reduction in these duties will have upon the metal trades of the country, as well as upon the iron ore market west of the Allegheny mountains.

Throughout the hearings before the committees of both houses, the testimony was universal that the placing of iron ore upon the free list, or reducing the duties much below the protective line, would certainly have the effect to encourage large importations of ore from Cuba. Much stress was laid upon the fact that under the duty of 40 cents a ton, and even after the reductions by the reciprocity treaty with Cuba, carrying the rate on imports from that island of 20 per cent below the 40 cents a ton rate, ore importations from Cuba were not greatly stimulated. The friends of the proposition for placing iron ore on the free list, which was originally carried through the house in the Payne bill, contended that with the production of iron ore in the United States aggregating more than 40,000,000 annually, a considerable increase in importations from Cuba and other countries might be encouraged without serious injury to the ore industry of this country.

According to the latest available statistics, which cover the fiscal year ended June 30, the aggregate importations of iron ore have not materially changed during the past three or four years, and amount to about 1,000,000 tons annually. Of this amount, during the last fiscal year, 658,000 tons came from Cuba, which is the highest level reached in recent years. From Europe there came 269,000 tons, and from British North America 94,000 tons. The aggregate valuation of the imported ore is quoted at about $2,000,000.

It was plain from the discussion which attended the action of the house of representatives and the votes in the senate on iron ore duties that the representatives of the iron and steel industry east of the Alleghenies, and especially in the south, expected good results to flow to the iron and steel industry of their sections of the country if ore were placed upon the free list, and large importations from Cuba could be encouraged. This was particularly true of those who called attention to the desirability of bringing in Cuban ores for the benefit of all the iron and steel mills on the Atlantic seaboard, from eastern Pennsylvania to the Birmingham district.

The fact is to be borne in mind in connection with the new duty of 15 cents a ton on iron ore that the reciprocal trade agreement between the United States and Cuba remains, under which Cuba obtains a concession on her exports to the United States of 20 per cent below the existing tariff rate. This would leave the duty on iron ore at 12 cents a ton on imports from Cuba.

Will Terminate Agreements.

Announcement is made by the treasury department of formal action by the secretary of state carrying out the provisions of section four of the new tariff, conveying notice to the several governments with which commercial agreements are now in operation under the provisions of the Dingley tariff, that such agreements will be terminated on the dates specifically named, six months from the time of such notice. Taking advantage of the expectation that congress would legislate to that end, the state department gave notice some months in advance with respect to many of these treaties, with the result that several of the most important agreements will be terminated at the end of the coming month of October. The treaties in question, which are in fact commercial agreements only, were in force between this government and France, Switzerland, Bulgaria, Germany, Great Britain, Portugal, Italy, Spain and The Netherlands.

The most important of these treaties are those with Germany, France and The Netherlands. It will be recalled that the commercial agreement entered into in April of 1907, between the representatives of this government and of Germany, created considerable consternation among the protectionists of the country, who denounced the agreement as a departure from the strict letter of the law, in that it established a new basis for the ascertainment of "market values" in the country of exportation. Many other new provisions were contained in that agreement with Germany, the most important, in addition to the one respecting market values, being the establishment of a new policy in dealing with the testimony of chambers of commerce of foreign exporting countries on questions of market value and cost of producing commodities in the countries of export. These provisions of the German tariff were speedily extended to all the countries with which the United States has such special commercial agreements.

Effect of Maximum Provision.

The intent of the new tariff law, as indicated by the act itself, and by the expressions of members of both houses, in preparing the new maximum tariff section of the law, is to establish entirely different trade relations between the United States and these leading commercial countries, especially with respect to the treatment which the exports of the United States obtain in the markets of those countries. Under the notice which has been given by the secretary of state, the commercial agreements with France, Switzerland and Bulgaria terminate on Oct. 31; those with Germany and Great Britain will end on Feb. 7 of next year; and with the other countries named on Aug. 7 of that year.

The commercial agreements with Germany, France and The Netherlands are of particular importance to exporters of manufactured commodities and breadstuffs and provisions. A number of important concessions were made to the United States under the commercial treaties with Germany and France covering many articles of iron and steel production, including certain grades of implements, machinery and tools. With the Netherlands, the chief advantages accruing to this country were upon breadstuffs and provisions. One feature of the new tariff which operates strongly against Germany and France and will be effective upon the expiration of the present commercial agreements, independent of the new maximum tariff provision, is found in the heavily increased duties upon wines, liquors and silks, which constitute important factors in the exports of those countries to the United States.

These points in the new tariff ought to be stimulative to secure from these leading commercial countries of Europe every possible concession in order to prevent the enforcement of the maximum tariff section of our new law, which would increase by 25 per cent ad valorem the duties on all imports from those countries to the markets of the United States.

ARTHUR J. DODGE.

The Buckeye Rolling Mill Co., which was recently organized by men connected with the La Belle Iron Works, Steubenville, O., has taken over the property formerly known as the Ohio Rail Mill, at Newark, O., and will use the plant there to manufacture light rails. Newark people raised a bonus of $5,000 to keep the mill there.

STEWART IRON CO.

Is Rebuilding Its Plant—Electric Power to be Used.

Notable improvements are being made at the plant of the Stewart Iron Co., Sharon, Pa., which practically amount to a rebuilding of the plant, at an estimated cost of $225,000. The company's old puddling mill has been removed in order to provide for additional storage capacity, plans for the future contemplating an additional blast furnace. The yard is to be equipped with a Brown-Hoist electric traveling bridge, which will span the entire yard and trestle, running 65 feet above the yard line. An electric transfer car is also to be operated in this connection. Steel coke and ore bins are being installed, with an electric locomotive larry beneath the bins. The furnace is being equipped with a new Brown furnace top and electric hoist and skip car. A new cast house is being constructed which will be equipped with an electric crane and hoisting magnets.

The electrification of the entire plant has necessitated the construction of a new power plant, which will be equipped with Buckeye engines, direct connected to generators. Heretofore, practically the only electric power used by the company has been for lighting purposes, this being obtained from the city illuminating company; but the modernizing of the plant provides for electric transmission throughout.

In addition to these improvements, a combination machine and blacksmith shop is under way, in which all the machines and forges will be operated by separate motor drives. The rebuilding of the plant and the installation of all new equipment is being undertaken by the Brown Hoisting Co., Cleveland. The plant will resume operation about the middle of October.

EASTERN PENNSYLVANIA NEWS NOTES.

The Sweet Steel Co., Williamsport, Pa., is increasing its Siemens heating furnace capacity, this being made necessary by the installation of a re-rolling rail mill making sections from 12 pounds to 30 pounds. The rail capacity is 100 tons per day, in addition to which the company rolls special bars, angles and special shapes, chiefly for agricultural implement and bedstead manufacturers. The former equipment consisted of a 14-inch bar mill, which was replaced by a 16-inch re-rolling rail mill. The company reports business prospects bright.

The Vulcan Iron Works, Wilkesbarre, Pa., has just delivered a pair of 18 x 30-inch link reversing Corliss engines for driving the coal breaker for the Nottingham colliery of the Lehigh-Wilkesbarre Coal Co., at Plymouth, Pa. The same style of equipment was placed in the plant of the Anthracite Brickette Co., Dickson City, Pa. A 20 x 30-inch single drive engine was installed in the new spring plant of the Sheldon Axle Co., Wilkesbarre, Pa.

Some time within the next 60 days the office of the Kittsee Storage Battery Co., Connell building, Scranton, Pa., will be moved to the plant at Wilkesbarre.

The Scranton Machine Co., Scranton, Pa., which last year was placed in the hands of a receiver, has been reorganized and is now the Stone, Van Norstrand Co. Their product is mine, elevating and conveying machinery, boilers and engines.

The McClave-Brooks Co., Scranton, Pa., is now putting out a new brick covered grate for a double arch hand-fired furnace.

Foreign Aluminum Market.—The foreign aluminum market presents an interesting situation. Following the extremely low prices prevailing up to a short time ago, when two of the largest British makers went into the hands of receivers and a number of continental concerns suffered a like fate or were closed down, efforts have been made to form a syndicate of the principal producers, and the project now seems likely of success. Foreign prices have advanced fully £10 from the low figure prevailing two months ago, and it is now difficult to secure quotations. The cheapness of the metal made it in considerable demand to replace copper wire and, as it is not a subject of much speculation and no important stocks are held, the surplus supply has been quickly taken up by the marked improvement in the electrical trade and in allied consuming lines.

Geologists and prospectors have been extremely busy lately in the Crystal Falls district of the Menominee range. Various interests have been picking up small parcels and are now mapping out exploratory programs which may mean the opening of several new mines. One of these ventures is that of the Longyear-Hodge Co., which has started five drills.

SCARCITY OF LABOR.

Indianapolis Concerns Find It Difficult to Get Men.

Indianapolis, Aug. 16.—With the general resumption of activity in the local iron working industry, there is a scarcity of laborers and experienced men. When some of the plants practically ceased operations during the panic, many local workmen left the city. The American Car & Foundry Co. has work enough ahead to keep busy for six months and is having difficulty in getting enough men. Recently the company received a contract for overhauling and repairing all of the freight cars of the Illinois Central Railroad.

The Parry Automobile Co. is equipping the old plant of the Standard Wheel Co. and will soon be turning out its first cars. The company was organized a few weeks ago with an authorized capitalization of $1,000,000 and with David M. Parry, for 27 years president of the Parry Mfg. Co., at its head.

Owing to a breakage of machinery, the tin plate mill at Atlanta was compelled to close for several days recently. These repairs have now been completed and the plant has resumed operations.

It is reported, upon good authority, that a steel mill employing about 1,000 men, now located in the Pittsburg district, contemplates moving to Evansville. Charles S. Hernly, of Newcastle, is acting as agent for the Pittsburg concern and has secured an option on 1,000 acres of land.

Increased business has compelled the Crawford & McCrimmon Co., of Brazil, to make extensive additions to its plant. A two-story brick building, 40 by 100 feet, is now under construction and will be used as a brass foundry, pattern shop and warehouse. Other buildings are to follow, but probably will not be erected until next spring.

The new plans for the Murat Temple have been completed and a building permit for $250,000 issued by the city building department. Albert Von Spreckleson is the general contractor and the Brown-Ketcham Iron Works of this city will furnish the structural steel.

Messrs. Olin, Gibberson & Hilands, 2 Rector street, New York, have been appointed exclusive agents in the New England and Middle States for the sale of iron body gate valves manufactured by the American Valve Co., Coxsackie, N. Y.

ALUMINUM PLANTS

Are Consolidated — Many Improvements Will be Made.

The consolidation of five of the largest aluminum casting plants of the United States has been effected by which the Aluminum Castings Co., Cleveland, acquired the properties and business of the Allyne Foundry Co., Cleveland, Detroit and Buffalo; the Syracuse Aluminum & Bronze Co., Syracuse; the Eclipse Foundry Co., Detroit, and the foundry department of the United States Aluminum Co., New Kensington, Pa. Cleveland capital and Cleveland men are important factors in the transaction, the effect of which will be felt the country over. It is estimated that the annual consumption of the new concern will be between 7,000,000 and 8,000,000 pounds of aluminum. The company is incorporated at $800,000.

It is the intention of the Aluminum Castings Co. to operate the above mentioned plants under the same general arrangement as heretofore, although many improvements will be made at the plants in question, as far as equipment is concerned. In addition to this, several new foundries are being erected at Detroit and Cleveland. The Detroit plant is to be a new departure in the foundry trade, both as regards construction and operation. Twenty-four acres have been obtained on Chene street. The Moore Engineering Co., Cleveland, designer of both the Detroit and Cleveland plants, contemplates breaking ground for the new structures in about 10 days. The plant has a frontage of 590 feet and a depth of 2,100 feet. It is to be constructed and operated on the unit system throughout. There will be five buildings, identical in construction, each being a complete foundry in itself, having its own core, molding, casting and grinding departments. The most improved sand handling and conveying apparatus will be installed throughout. The new sand will be dropped directly from cars to storage bins from which it will be carried by conveyors to the core benches from a mixer, where it will be automatically mixed with the proper proportion of old sand. The refuse sand is conveyed from the molders' benches and all foreign matter automatically separated before it reaches the mixer. The molten metal is also to be handled automatically. A portable melting crucible, invented by Mr. Allyne, will be carried on runways and the metal delivered automatically to the crucibles of the molders.

The grinding rooms are to be equipped with the best of ventilating systems. An exhauster at each grinding wheel will carry away the metallic dust, which will be used again in the furnace. An innovation in this department will be the chipping blocks, which will be made of concrete in the form of cylinders and filled with sand, this being done to deaden as much as possible the noise of the pneumatic hammers. All grinders will be electrically operated by separate drives. The plant will be illuminated throughout by a flaming arc system, as this light, more than any other, penetrates the vapors which form when the metal is being poured.

The plant will also include an experimental laboratory, in which experiments will be carried on by metallurgical experts for the benefit of any of the company's patrons who may so desire.

The design of the power plant is not completed, but it is understood that it will consist of gas engines direct connected to generators, electrical transmission being used throughout the plant. A complete layout of the power plant will be given in a future issue of THE IRON TRADE REVIEW.

The welfare of the employes has been sought in every detail of design at the new Detroit plant. The best of ventilation will be provided throughout, and particular stress has been laid on lighting facilities; in fact, the walls of the buildings will be almost entirely of glass. Dining rooms are also planned for in the buildings. It is expected that this plant will be ready for operation in about 90 days.

Additions are also being made to the Cleveland plant, these consisting of a foundry 61 x 256 feet and two-story office building 90 x 58 feet, and a core room 60 x 99 feet.

Nearly Completed.—The new sheet mill and open-hearth plant of the West Penn Steel Co., at Brackenridge, Pa., is rapidly nearing completion and preliminary operations are expected to be started about the middle of September. The new plant will be entirely finished and running steadily by Oct. 1. At the present time, the 80-ton open-hearth furnace has been completed, the sheet bar mills installed and the sheet mills are being set up. The company will be a maker of special sheets including those adapted to the manufacture of electrical equipment. It will also be a seller of a moderate tonnage of sheet bars in the open market.

PRODUCTION OF PIG IRON IN CANADA.

The American Iron & Steel Association has received direct from the manufacturers complete statistics of the production of pig iron in Canada in the first six months of 1909.

Total Production.

The total production of all kinds of pig iron in the Dominion in the first half of 1909 amounted to 349,641 gross tons, as compared with 256,598 tons in the last half of 1908 and 307,074 tons in the first half. This is an increase of 93,043 tons as compared with the last half of 1908 and of 42,567 tons as compared with the first half. The production in the first half of 1909 was the greatest in any half year in the history of the Dominion, exceeding by 38,595 tons that of the last half of 1907, the next highest half year. It was also greater than the production of any whole year prior to 1905. The following table gives the half-yearly production since 1906.

Periods— Gross tons.	1906.	1907.	1908.	1909.
First half....	282,010	270,100	307,074	349,641
Second half..	259,947	311,046	256,598	.....
Total	541,957	581,146	563,672	.....

Classified Production.

The production of Bessemer pig iron in the first half of 1909 amounted to 99,639 tons, against 52,586 tons in the last half of 1908 and 60,225 tons in the first half of that year. This is an increase of 47,053 tons as compared with the last half and of 39,414 tons as compared with the first half of 1908. The Bessemer production in the first half of 1909 exceeded that of any other half year.

The production of basic pig iron in the first half of 1909 amounted to 165,112 tons, against 140,201 tons in the last half of 1908 and 195,209 tons in the first half. This is an increase of 24,911 tons over the last half of 1908 but a decrease of 30,097 tons as compared with the first half.

Furnaces in Blast.

On June 30, 1909, Canada had 16 completed blast furnaces, of which 10 were in blast and 6 were idle. Of this total 12 were equipped to use coke and four to use charcoal. In addition, one coke furnace was being built. Two coke furnaces were partly erected on the same date, the construction of which was indefinitely suspended a few years ago. Work on one of these furnaces is to be resumed in August. One coke furnace was also projected, work upon which is to be started this fall.

TIN PLATE PRICES ADVANCING.

(Special Telegram.)

Pittsburg, Pa., Aug. 18.—A number of independent makers of tin plate are individually elevating their prices. Some are now quoting advances of 25c, making a quotation per base box of $3.65, Pittsburg. The sold-up condition of makers, many of whom are unable to make any additional deliveries this year, and the rise in semi-finished steel, are responsible for the advance. The leading interest has made no official announcement of any change from its $3.40 price, Pittsburg, per base box.

A sale of 3,000 tons of basic pig iron for first half at $16.50, valley, is reported. There are some new inquiries from the east in this market for basic for next year.

WILL MANUFACTURE AUTOMOBILES.

Under the corporate name of F. I. A. T., these being the initials of the Fabrica Italiana di Automobili Torino, the Fiat Automobile Co. interests in this country have formed a company with $2,000,000 capitalization, the incorporators including Elmer R. Hollanderfi, 1786 Broadway, New York City. Plans have been prepared for a complete plant, which will be located at Fairview, just outside Poughkeepsie, N. Y., where automobiles will be manufactured under conditions approaching as nearly as possible to those at the Turin works in Italy. The main building, 140 x 363 feet, will be of three stories, with a tower 100 feet high to accommodate the offices, draughting rooms and pressure tanks. The first floor of the main building will be used as a machine shop and assembling hall, the second for lighter machine work, and the third for woodworking purposes. From the main floor, five one-story wings, each 70 x 140 feet, will extend in such a way that the entire working space on this floor can be supervised from any point. The plant will be well lighted and ventilated, equipped with an elaborate sprinkler and standpipe system, and electrically operated throughout. The architecture will be Italian, the exterior of the buildings being treated in light stucco, and the roofs built of red tile; either steel or concrete will be the material of construction. Ground will be broken for the plant about the end of this month, and the completed factory will have an area of about 110,000 square feet.

PERSONAL.

Walter Wood, of R. D. Wood & Co., Philadelphia, is in Europe.

Ralph B. Nickerson, formerly with the Chapman Valve Mfg. Co., has joined forces with Knowles Steam Pump Co., East Cambridge, Mass.

Frederick E. Town has been made manager of the Pittsburg office of the Otis Elevator Co. He was formerly assistant sales manager of the company.

J. C. Ward, manager of Edgar Allen & Co., Ltd., 23 W. Randolph street, Chicago, sails for England August 18. He will return about the end of September.

J. C. Maloney, superintendent of the rod, wire and nail departments of the Youngstown Sheet & Tube Co., Youngstown, O., has resigned and has returned to his home, 2005 Delaware avenue, Swissdale, Pa., for a short period.

George H. Wadsworth, superintendent of The Falls Rivet & Machine Co., Cuyahoga Falls, O., and inventor of the Wadsworth core-making machines and core room equipment, sailed for England on the Lusitania on Wednesday, Aug. 18.

James H. Caldwell has succeeded John T. Christie as president of the Ludlow Valve Mfg. Co., Troy, N. Y. Other officers elected at the last directors' meeting are Marcus Steine, vice president; Max Nathan, treasurer; J. W. Mack, secretary; John T. Christie, chairman of the board.

J. W. Marshall has been chosen superintendent of shops of the engineering college of the University of Pittsburg. He is a graduate of Cornell university and has been connected with the Westinghouse Airbrake Co., Pittsburg Meter Co., and the Ideal Engine Works, Springfield, Ill.

H. G. Nichols, formerly assistant general manager of the Canadian General Electric Co. and the Canada Foundry Co., has resigned and organized a company with headquarters in Toronto, to be known as the Factory Products., Ltd., which will act as selling agent for manufacturers.

H. A. Croxton, president of the Massillon Iron & Steel Co., the Massillon Bridge & Structural Co. and the Massillon Foundry & Machine Co., has been elected president of the newly organized Croxton-Keeton Motor Car Co., which succeeds to the business of the Jewell Motor Car Co.

J. C. Ward, resident director at Chicago of Edgar Allen & Co., Ltd., Sheffield, England, sailed on Wednesday, for England. While abroad, Mr. Ward will be married to the daughter of N. R. Hepworth, Esq., former lord mayor of Leeds. After a short tour on the Continent, Mr. and Mrs. Ward will come to Chicago, and make their home at the Auditorium Annex.

Ambrose Beard, of the Follansbee Bros. Co., Pittsburg, will assume his new duties Sept. 1, as assistant to Julian Burdick in the sales department of the West Penn Steel Co., Pittsburg.

John K. Frye has retired from Banning-Cooper & Co., Ltd., Pittsburg, and the business will be conducted as heretofore, with C. F. Banning as chairman; S. G. Cooper as president and Floyd K. Smith as secretary and treasurer.

OBITUARY.

Herman P. Schuyler, assistant treasurer of the General Electric Co., died Aug. 14 at his home in Albany. He was 67 years of age and had been connected with this interest since 1893.

Joseph W. Mayworm, who for nearly 12 pears has been assistant postmaster of Detroit, died Aug. 10 after a very brief illness from heart disease. Mr. Mayworm was born in Detroit in 1851, but removed to Houghton, Mich., where, after beginning his business career, he became secretary of the Lake Superior Iron Co. From 1883 to 1896 he was secretary of the Riverside Iron Works in Detroit, remaining in that position until he entered the employment of the government.

William T. Johnson, a pioneer in the iron business in Chicago, died recently in that city. He came to Chicago from New York state in 1853 and soon after that became connected with the Mason Iron Co. Later he was with Lawson & Bliss, hardware dealers. In 1878 Mr. Johnson became a state senator and after that was treasurer of Cook county, railway commissioner under Governor Oglesby and Indian commissioner under President Garfield.

It has been a subject of remark that no mines have been developed in the 10-mile stretch of country between Iron Mountain and Commonwealth in the center of the Menominee range. Very little exploratory work has ever been done there, and it is not recalled that any diamond drilling has ever been done. About 14 drills are at work steadily on the Adams-Spruce mining property, prospecting for ore. There is believed to be a continuous body of ore from the Adams mine to the large Iron Mountain mine, five miles distant.

ADDITION TO CAR PLANT AT CHICAGO.

The Blue Island Car & Equipment Co., 124th street and Marshfield avenue, Chicago, has recently extended its plant by the addition of an iron rolling mill, which is expected to be in operation within two or three weeks.

The plant is for the manufacture of high grade iron rods and bars suitable for railroad and similar requirements, and consists of an 18-inch, two-stand, three-high, roughing roll train, which is driven direct by a 28 x 48-inch Allis-Chalmers, heavy-duty Corliss engine with a 50,000-pound flywheel, grooved for 15 1¾-inch ropes, by which the 10-inch finishing roll train is driven.

The 10-inch mill has four 3-high stands and one 2-high finishing stand, and is arranged tandem with the 18-inch mill.

The mill building is of steel construction and is 300 feet long and 80 feet wide, arranged with a 60 by 30-foot extension at the north end, under which is located a 5-inch billet shear and the usual scrap shears. At this end, there is also a large scrap storage yard 80 by 300 feet with railroad tracks so arranged that raw material can be easily and cheaply unloaded direct from cars to any part of the yard by means of a ten-ton locomotive crane, equipped with an electro-magnet furnished by the Electric Controller & Mfg. Co., Cleveland. These tracks run along each side of the mill building and continue south of same to storage yard for finished product. There are two coal-fired four-door furnaces with hearths 17 feet long by 7 feet wide and the waste heat from these furnaces will be utilized in two 200-horsepower Cook vertical boilers, which will furnish steam for the engine. As sufficient steam cannot be obtained at all times from this source, a 250-horsepower hand-fired Cook vertical boiler has been installed and this boiler is arranged to burn waste and scrap lumber from the wood-working department of the plant. There are two single cylinder horizontal outside end packed Canton Hughes feed pumps furnished by the McMaster-Carr Supply Co., Chicago, and one No. 3 Stillwell heater furnished by the Platt Iron Works, Dayton. The piping work has been installed by the Henderson Co., of Chicago, each boiler being equipped with one Crane automatic stop and check valve and one extra heavy Crane stop valve.

The steam line has a 9-inch Davis steam separator at the engine, and there is a 12-inch Davis atmospheric exhaust valve in the exhaust line; both made by the Hughson Steam Specialty Co., Chicago.

The mill machinery was furnished by the United Engineering & Foundry Co., Pittsburg, and the equipment includes a hot saw for cutting heavy sections, cropping shears at end of hot bed and roll lathe. All the machinery with the exception of the mills themselves is electrically driven by individual three-phase, alternating current motors; current being furnished by the Commonwealth Edison Co. The test room is equipped with a 100,000-pound Riehle testing machine and every facility is afforded for properly testing and keeping records of the material made.

The car repair plant of this company is very extensive, having facilities for economical handling and repairing of 750 cars per month. F. H. Niles is president and general manager of the company, and David Letts is mechanical engineer.

CIVIL SUIT AGAINST EMPLOYES.

A civil suit asking for $200,000 damages from 56 former employes of the New Castle tin mills of the American Sheet & Tin Plate Co. has been entered in the United States district court at Pittsburg by the company. It is set forth in the petition that the defendants, who are now on a strike against the open shop declaration of the company, are interfering by intimidation and threats with the company's placing at work a sufficient number of employes to operate the plants and that as a result, it has been unable to fill orders for tin plate, compelling the cancellation of contracts and thereby the sustaining of a heavy loss in profits. In its bill of particulars, the American Sheet & Tin Plate Co. states that while it nominally gives employment to 3,000 persons in the New Castle mills, it has a force of only 700 at work at the present time. The allegation is also made by the plaintiff company that it has been put to a large expense in employing guards and cooks and in providing board and lodging of its present employes.

FABRICATORS ARE ASKING FOR LOWER RATE.

San Francisco, Aug. 15.—Local fabricators are making united effort to secure a reduction in the freight rate, in order to be able to compete with fabricators in other cities along the coast and in the interior. With high wages, short workday and excessive freight, the San Francisco fabricator is sorely handicapped. With all the climatic advantages, enabling people to work in, or out-of-door, at all seasons of the year, with location for shipping to all points on the globe, San Francisco should occupy front rank as a manufacturing center. Instead its plants receive the crumbs, while the large jobs go to the American Bridge Co., the Bethlehem Steel Co. and other eastern concerns whose agents are on the ground, and are able to outbid the home fabricator almost every time.

BLAST FURNACE NOTES.

Ella furnace of Pickands, Mather & Co. was lighted Aug. 1.

E. & G. Brooke Iron Co. blew in one of its Keystone stacks July 13.

The Sharpsville Furnace Co. blew out its Sharpsville, Pa., furnace July 1.

Oxford, N. J., stack of the Empire Steel & Iron Co. was blown in July 26.

The Jefferson, Tex., stack of the Jefferson Iron Co. will be lighted about Sept. 10, if present plans mature.

Edgewater Iron Co. applied the torch to its Lebanon, Pa., stack July 13, after making extensive repairs.

"B" stack of the Mayville, Wis., furnace of the Northwestern Iron Co. blew out July 3.

The Virginia Iron, Coal & Coke Co. blew out in July its Watts, Ky., stack which had been operating since last spring.

The Wisconsin Steel Co. blew out "A" furnace at South Chicago July 30 for relining, which it is estimated will require about a month.

The Belfont Iron Works Co. will blow in its furnace at Ironton on Aug. 19 on Bessemer iron, and will make about 175 tons per day.

The Alice blast furnace, at Sharpsville, Pa., which was recently purchased from the Youngstown Sheet & Tube Co., by the Thomas D. West Foundry Co., will be operated on special Bessemer for ingot molds when the new owners come into possession, July 1, 1910.

SOME SIGN, OTHERS DO NOT.

The N. & G. Taylor Co., Philadelphia, has signed the wage scale of the Amalgamated Association of Iron Steel and Tin Workers and has resumed operations. This concern is the last of the independent tin plate establishments to sign the Amalgamated scale. Among the sheet mills the Berger Mfg. Co., Canton, O., with 21 hot mills continues as it has been for years, an open shop. The LaBelle Iron Works, Steubenville, O., and the Youngstown Sheet & Tube Co. are also making sheets in open shops.

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THE AVERAGE PAID CIRCULATION OF THE IRON TRADE REVIEW FOR THE ISSUES OF THE FOLLOWING MONTHS WAS:

January	5,506
February	5,346
March	5,396
April	5,508
May	5,533
June	5,551
July	5,572

August 19, 1909.

OUR MERCHANDISE BALANCE OF TRADE.

The June statistics of imports and exports show that for the first time since June, 1897, the monthly merchandise balance of trade was against us. The monthly movement in the fiscal year has been as follows:

	IMPORTS.	EXPORTS.	EXCESS OF IMPORTS.	EXCESS OF EXPORTS.
July, 1908	$ 86,435,493	$103,199,576	.....	$16,764,083
August	91 183,536	110,443,055	.....	19,259,519
September	98 427,984	139,327,205	.....	40,899,221
October	102,040,110	171,984,538	.....	69,944,428
November	103,915,247	161,252,653	.....	57,337,406
December	111,920 562	188,830,907	.....	76,910,345
January, 1909	103 576,501	156,712,842	.....	53,136,341
February	118,653.526	126,051,734	.....	7,398,208
March	132.873,926	139,291,367	.....	6,417.441
April	122,167,675	125,174,860	.....	3.007,185
May	116 056,454	123,353,728	.....	7,297,274
June	124,665,129	117,419,589	$7,245,540	.....
Totals	$1,311,920,224	$1,663,011,104		$351,090,880

The decrease in the excess of exports from a high point in the late fall and winter to a low point not far from the middle of the calendar year is not unusual, but since 1897 it had not occurred that the favorable balance was reduced to the vanishing point. In the preceding 12 years, the low month had been July, four times, June and August, three times each, and April and May, once each, the low point therefore appearing to center about July 1.

The surmise might be made that there was a rush to import some lines of merchandise before the new tariff law went into effect, but as the general trend of tariff revision is said to have been downward, the effect of this should not be important. As noted, it is the rule for the balance of trade to be lighter in the few closing months of the fiscal year, and it may be observed, too, that the June imports were not extremely large; they were exceeded once in the fiscal year 1909, once in 1908 and five times in 1907.

While the trend in the monthly showing seems to be towards a less favorable merchandise balance of trade, it is better to compare fiscal year totals. It is customary to make long range comparisons of the balance of trade, using simply the balances themselves, but such reasoning defeats its end, because the relation is lost. The balance should not be taken by itself, as a little reflection upon the causes which produce it readily shows. The causes of the favorable balance of trade are, in general, undervaluation of imports and overvaluation of exports, freights paid to foreign owned vessels, the interest and dividends paid to foreign holders of American securities, the return of these securities, money spent by Americans traveling abroad, and loans made abroad and the interest return upon them. Many of these influences are directly, and most of the remainder are indirectly, in general relation to the volume of trade; if the total volume, imports plus exports, is large, then when a favorable balance of trade in the apparent movement is noticeable at all, it is necessarily large at that time.

Setting down the apparent balance of trade alongside the total merchandise movement, imports plus exports, the following showing is made for the past 12 fiscal years:

	TOTAL MOVEMENT.	FAVORABLE BALANCE.
1898	$1 847,531,984	$615,432 676
1899	1,924.171,791	529,874,813
1900	2,244,424,266	544,541,898
1901	2,310,937,156	664,592.826
1902	2 285,040,249	478,398 453
1903	2,445,860,916	394 422,442
1904	2,451.914,642	469,739,900
1905	2,636,074,737	401,048.595
1906	2 970,427,946	517,302 054
1907	3,315 272,503	446,429,653
1908	3,055,115,138	666.431,554
1909	2,974,931,328	351,090,880

The delusiveness of the mere comparison of trade balances in different years may be observed when it is noted that the balance of $666,000,000 in 1908 appears excellent, being the highest on record and approached nearly only by those in 1898 and 1901, yet it must be observed that the total import and export movement in 1908 was $3,055,000,000, while in 1898 it was only $1,848,000,000. By the rule of three, the balance in 1908, to make as favorable a showing in proportion to the total volume of trade as the balance in 1898, should have exceeded $1,000,000,000. The actual result fell short by 35 per cent. It was not really as favorable, in proportion, as the balances shown in the earlier years of the table. In proportion to the total trade and balance in 1898, the balance in 1909 should also have been about $1,000,000,000, but it was only $351,000,000, thus falling 65 per cent below the relation.

The trend in the balance of trade is very much downward, comparing the fiscal years 1908 and 1909, as the balance was almost cut in half from one year to the next, but such short range comparisons, while of some value, entirely fall short of being conclusive. The longer range comparison, taking several years, and comparing the balances with the total volume of trade, show a downward trend in the proportion.

It is easier, however, to analyze tendencies than to fathom causes. Large favorable balances in the merchandise movement have generally preceded prosperity, but a fallacy may be involved in concluding that they are the

cause of prosperity, for such favorable balances, as they precede prosperity, are necessarily at the same time the accompaniment of industrial depression, since periods of depression alternate with periods of prosperity. Too much stress must not be laid upon the very large favorable balance in 1898, for it followed a fiscal year in which imports had been very large in anticipation of the increased duties of the Dingley law. Exports of late have been decreased because of the small amount of grain available for export, a condition which, if not favorable as regards our foreign commerce, is at least favorable in that it means a larger domestic consumption.

Inasmuch as the "invisible balance of trade" is partly the cause and partly the result of the merchandise balance of trade, it is obvious that we are not accumulating a large foreign credit balance, such as produced such favorable financial results in 1898 and 1901, but that again will bring a train of adjustments. The merchandise movement is fairly sensitive, and, by bridging the depletion of the credit balance by loans, merchandise prices may so change as to encourage exports and discourage imports. Certainly the new tariff law has little in it to encourage imports in a way to affect the merchandise balance of trade.

DETERMINING THE POWER OF GAS ENGINES.

There has been more or less feeling on the part of engineers that the indicating of gas engines was open to very much greater errors than was the case with steam engines, and, therefore, that the actual performance of the gas engine could be better determined from a study of its brake horsepower. This matter has been carefully investigated by the research committee of the Institution of Mechanical Engineers of the United Kingdom, and the results of this investigation were incorporated in a paper read at the last meeting of the Institute, held in July, by Prof. Frederick W. Burstall, of the University of Birmingham.

In order to determine what the error amounted to in the indicating of gas engines, two indicators of dissimilar types were used simultaneously, in connection with a 16 x 24-inch Premier gas engine; one a well-known indicator of the ordinary string type, and the other an optical indicator obtained from the engineering laboratory of the University of Birmingham. Both indicators were carefully calibrated before and after each set of trials. For both indicators, particular attention was directed to the method for driving the indicating barrels, as this is a matter which the author ventures to consider as not receiving sufficient attention. The barrels of both indicators were rotated by a phosphor bronze stranded wire. In neither case was there any measurable back-lash in the driving mechanism. The use of hemp cord in any form is certainly not so desirable as the phosphor bronze wire.

Conclusions were drawn from a set consisting of four mean diagrams prepared from not less than 12 individual cards, ordinated, and the heights carefully measured. The corresponding mean diagrams of each indicator were superposed one on the other so as to exhibit whatever differences there were between the indicators.

Speaking generally, the compression curves are coincident. The maximum pressures practically agree in two of the diagrams, while in one of them, the string type instrument, and in the other the optical, gives the higher initial pressure. The expansion lines of the two pressures agree for the first third of the stroke; after this, the optical indicator gives a persistently higher expansion line. The effect of this gives about 3 per cent higher mean pressure than shown by the other instrument. This difference the author accounts for by the fact that during the calibration of the optical indicator with dead weights from which the scale of the spring is obtained, the ends of the spring may be assumed to be absolutely fixed, but when the indicator is in use, it is possible that there is a slight slip through the screws which constrain it.

The result of these comparisons, while not an absolute proof of the accuracy of either of the indicators, is still strong evidence that both are giving results that are close to the truth. The two are entirely dissimilar types, one multiplying the motion of the indicator by six and the other by about 120, and a very similar ratio existing between the rotation of the drum and the mirror. In the optical indicator, the inertia is certainly neglible; that the two give results that are within 3 per cent on the mean pressure, and very nearly the same figures for the initial pressure, is good presumptive evidence that when either indicator is used with the proper precaution the results so obtained are at least as accurate as any other measurement which can be made in engine testing.

But it is also pointed out that unless these precautions are observed the results are only of value as an indication of valve setting and not reliable as to actual pressures. This, however, is true of all indicating, and the ordinary diagram is at the best only an approximation.

GREAT ACTIVITY OF IRON MILLS.

The puddling iron industry is again active, as most of the mills have resumed, following the recent signing of the scales of the Sons of Vulcan, the organization of the puddlers. Among the plants that have recently started their furnaces are the Wheeling Iron & Steel Co., at Benwood, W. Va.; Moorehead Bros. & Co., Pittsburg; Kittaning Iron & Steel Mfg. Co., Kittaning, Pa., and Pittsburg Forge & Iron Co., Pittsburg. The companies which have signed the Sons of Vulcan scale are as follows: Colonial Steel Co., Monaca, Pa.; A. M. Byers & Co., Girard, O.; A. M. Byers & Co., Pittsburg; Lockhart Iron & Steel Co., McKees Rocks, Pa.; Zug & Co., Pittsburg; Brown & Co., Pittsburg; Youngstown Sheet & Tube Co., Youngstown; Kittaning Iron & Steel Mfg. Co., Kittaning, Pa.; Pittsburg Forge & Iron Co., Pittsburg, and Wheeling Steel & Iron Co., Wheeling, W. Va.

Steel Tubing Plant.—The Keystone Tube Co., Pittsburg, has been organized and has acquired a site of 10 acres at Queens Junction, Butler county, Pa., upon which it has begun the construction of a plant for the manufacture of special steel tubing. The plant will consist of a steel-framed main building, 60 x 205 feet, with a lean-to on both sides. It will be equipped with specially designed machinery for tube making.

AMONG MACHINERY MAKERS.

NEW YORK.

Machine Tool Trade More Quiet, but Important Business Pending.

Office of THE IRON TRADE REVIEW, Room 1005, No. 90 West St., Aug. 17.

With the vacation period at its height and business developments consequently moving slowly, the local machine tool trade has assumed a more quiet tone and current sales are rather restricted. There is no reason to believe that any important reaction has set in or that the improvement recently noted has spent itself, for a few weeks of inactivity are quite the usual rule late in the summer. There is still a good scattering of trade in small lots and separate tools. Several large inquiries are still pending, though an early decision is anticipated; among these is one recently noted, covering the crane requirements of the American Locomotive Co. and involving a large figure. Something definite is also expected within a short time on the entire shop equipment for the Fiat Automobile Co. plant at Poughkeepsie; in fact, the milling machine equipment and some other lines have already been decided upon. Prices continue much the same and in many instances are still surprisingly low in comparison with the steady advance of materials, labor and other factors entering into manufacturing costs.

Within the next two weeks it is expected that most of the machine tools needed for the equipping of the factory to be erected at Poughkeepsie, N. Y., by the Fiat Automobile Co., 1786 Broadway, will be purchased. The list, to which reference has already been made, aggregates between $150,000 and $200,000. Bids have been received and decisions practically made on the larger tools and attention is now being directed to the smaller equipment. Detailed information concerning the new plant is given elsewhere in this issue.

Mitsui & Co., 445 Broome street, have completed the purchase of an entire equipment of second-hand machinery for a shop in Japan, the orders totaling between $15,000 and $20,000.

In connection with the issue of $12,000,000 bonds, authorized by the stockholders of the International Steam Pump Co. at a special meeting held last week, it is stated that a part of the proceeds of their sale will be devoted to additions and improvements to the company's plants. At the executive offices of the company, 115 Broadway, it is stated that, while this is correct, no further information can be given out at this time. August bookings of the company so far have been the heaviest in years and the July business done was the largest since the beginning of the depression.

The Crocker-Wheeler Co., Ampere, N. J., reports among recent orders several of considerable size from iron and steel working concerns, notably one from the Indiana Steel Co. calling for 70 direct-current mill motors, aggregating about 2,400 horsepower, which is in addition to some 11,000 horsepower of Crocker-Wheeler motors at present employed by this company. The Bethlehem Steel Co., which is now using 8,800 horsepower of these motors, has ordered a 225-horsepower compound-wound motor for installation at its Saucon plant. The King Bridge Co., Cleveland, has ordered a 150-kilowatt, compound-wound, 250-volt generator, and the Roessler & Hasslacher Chemical Co., Perth Amboy, N. J., 295 horsepower of induction motors, squirrel cage type.

The Isthmian Canal Commission will open bids Sept. 9 on an assortment of miscellaneous supplies which include a punching and shearing machine, a boring and turning mill, and engine lathe and other machine tools. On Sept. 7 bids will be opened on a considerable quantity of pig iron, ingot copper and ferro-manganese.

A small lot of equipment is shortly to be purchased for the Baltimore Polytechnic Institute, bids on which have just gone in to J. S. Thomas, at the city hall, Baltimore, Md.

PITTSBURG.

Builders of Heavy Machinery Well Supplied With Orders.

Office of THE IRON TRADE REVIEW, 510 Park Building, Aug. 17.

Builders of the heavier lines of machinery continue to book a very fair amount of new business and their shops and foundries are well filled with work, coming largely from the iron and steel and connected branches of trade. Some of the large makers in this district have as much work at hand as in the rush years and all appear to be filling up very favorably on their capacities. The comparatively lighter lines including the standard machine tools, are not moving so briskly as yet, although prospects continue to brighten. Pneumatic tool-makers continue to meet a heavy demand for their line. A recent important machinery contract placed in this district is for a large number of tin mill shears.

Second-hand machinery dealers report a gradual improvement over the summer in their conditions, and are looking forward to an active fall business. There is more inquiry at present for used equipment, but the market is showing the effects of the usual summer dullness.

Foundry activity in the Pittsburg district is improving, but the increasing operations are being shown mainly among the special plants which draw their patronage from the iron and steel makers. The jobbing shops are still lagging in their bookings, although present conditions are somewhat better than they have been. The brisker car buying and railroad repair work are giving the malleable foundries fuller capacities.

The Union Drawn Steel Co., Beaver Falls, Pa., maker of Bessemer, open-hearth, and crucible cold die rolled steel, is making some important improvements to its plant. An additional building for manufacturing purposes, about 100 x 180 feet, and a new power house are under course of construction. The work is well advanced and will be completed in about 60 days. It will increase the company's production and capacity about 15 to 25 per cent.

The plant of the Refined Iron & Steel Co., Pittsburg, located along the Pittsburg & Lake Erie railroad, will be offered for sale on the premises by Morris Streng, receiver, Sept. 1, at 10 A. M. The plant, which is practically new, consists of six buildings and the following equipment: Three heating furnaces, seven puddling furnaces, 22-inch muck mill, three finishing mills, 9-inch, 12-inch and 16-inch, two 1,000-horsepower Hamilton-Corliss engines, 10 other engines, electric conveyor, three Epping-Carpenter water pumps, machine shop tools, railroad sidings, tanks, fans, fan-house, etc. The site consists of seven acres.

No important active inquiries for heavy machinery for the Gary plant of the Indiana Steel Co. are set before the manufacturers at the present time. While the plans have been completed for the proposed large sheet and tin mills at this plant, these projects have

not yet developed to the stage of machinery buying. Among the recent important contracts placed for the Gary improvement was that for the tables, transfers, cooling beds, etc., for the 60-inch plate mill. The Wheeling Mold & Foundry Co., Wheeling, W. Va., was awarded a part of this equipment, together with the induction drives that are to be installed.

Awards are expected to be made soon for the slabbing mill and other rolling and steel works equipment for the new steel plant of the Standard Steel Car Co., at Butler, Pa. Preliminary contracts have been made. Julian Kennedy, Pittsburg, is the engineer in charge of this improvement.

Although the pipe furnace work upon the extensive reconstruction of the McKeesport plant of the National Tube Co., which has been under way for several years past, has been completed there still remains a portion of the original program of extensions to be finished. The uncompleted improvements are in connection with the foundry, machine shop, forge and other auxiliary departments. It is not expected that the final work will be done until well into 1910.

One of the recent important contracts for mill machinery placed in this district was that for 26 tin mill shears for the new tin plate plant of the Jones & Laughlin Steel Co. at Aliquippa, Pa.

Light and power companies recently incorporated in Pennsylvania include the Eastern Pennsylvania Power Co., $5,000, with Edwin C. Weller, Portland, Pa., a director; the Sterling Electric Light Co., $5,000, with P. F. Kelly, Wilkesbarre, Pa., as treasurer; and the People's Electric Co., $5,000, of Ambridge, Pa., with F. A. McVay, of Sewickley, Pa., a director.

The Erie City Iron Works, Erie, Pa., is in the market for a punch that will punch a 4-inch hole in inch stock.

BUFFALO.

Some Important Contracts for Water Works and Other Projects.

Office of THE IRON TRADE REVIEW, 932 Ellicott Square, Aug. 17.

The most noteworthy machinery contract pending in this territory is at Niagara Falls, N. Y., where bids will be opened Monday for the installation of a complete new waterworks plant in that city. More than $100,000 was appropriated for the construction of the works and $50,000 for machinery. The city proposes to install nine centrifugal pumps which will be electrically driven and will have a daily capacity of 25,000,000 gallons for domestic use. There is also a plan to provide for a fire service and in order to secure the high water pressure necessary for this service the pumps will be connected in series.

The Snow Steam Pump Works, Buffalo, is now arranging for the building of the two 30,000,000-gallon centrifugal pumps, the contract for which was awarded it as lowest bidder by the city of Buffalo. The new plant at Buffalo calls for an expenditure of about $250,000. It will require 15,000 horsepower engines to drive the pumps. The boiler contracts have not been let, but bids have been received from about all the leading boiler interests in this country.

The Allis-Chalmers Co. has practically completed the installation of the $250,000 equipment for the Washburn-Crosby Milling Co., which includes a 1,800-kilowatt turbine and the electrical transmission machinery.

George A. Ray Mfg. Co., Buffalo, has decided to abandon its present steam power facilities and install an electric power plant to take its place. The Buffalo Copper & Brass Rolling Mills Co. is now completing a large extension which calls for rolling mill and electrical equipment. Niagara Falls power is used.

The Lumen Bearing Co., of Buffalo, has decided to build at once an extension to its present plant providing for a new brass foundry. Another extension was quite recently finished.

The Lackawanna Bridge Co., Buffalo, whose plant is now under construction, is deliberating upon the question of power. It has not been decided, according to reports, whether steam or Niagara Falls electric power will be used.

The Buffalo Gasoline Motor Co., which has an extensive plant for the manufacture of marine gasoline engines, confirms the report that it has entered the automobile field and has booked a number of orders for automobile engines for deliveries at various times during the remainder of this year and the first half of 1910. It was not stated whether the company was extending its plant for this purpose, but it is now carrying a heavy business.

The Acme Pattern Works, of Buffalo, has become a part of the Frontier Iron Works of the same city. The latter company recently moved into its new plant at Grant and Letchworth streets.

The Buffalo General Mfg. Co., J. R. Koen, president, is building a factory at 1239 Niagara street, for the manufacture of automatic furniture and automobile fixtures.

Fire starting in the new cooling plant of the Jacob Dold Packing Co., of Buffalo, Aug. 12, caused damages amounting to $25,000. The cooling plant was still in the course of construction. It will be necessary to rebuild the plant with new equipment.

The Buffalo & Lake Erie Traction Co., of Buffalo, N. Y., has placed an order with the Cincinnati Car Co., for 12 new high speed interurban cars. The order calls for delivery within 90 days. The cars are of the pay-enter type. Considerable work is being done on the electric railway between Elmira and Waverly, N. Y., and the early completion of the project, which includes the building of a steel bridge over Seely creek, is expected. In Syracuse, the reconstruction of one of the electric lines of the Syracuse Rapid Transit Co., between the Erie and Oswego canal bridges, is in progress. The common council of Geneva, N. Y., has granted a perpetual franchise to the Geneva & Auburn Railway Co., to build an electric line in Washington and Pultney districts to the city line. It is reported here that an electric line is being projected between Cambridge Springs and Corry, Pa. It is proposed to use the roadbed of the Erie, Cambridge Springs, Union City & Corry, which was never built although much preparatory work had been done.

CLEVELAND.

Summer Slump Out of Question—Considerable New Equipment Being Added.

Office of THE IRON TRADE REVIEW, Browning Building, Aug. 17.

The situation remains practically unchanged as far as manufacturers of machine tools, in and about Cleveland, are concerned. Inquiries are being received at about the same rate as during the past few weeks, and the demand for tools continues firm, although large orders are exceptional. Any possibility of a summer slump is past, as most of the shops have sufficient work to carry them through the fall months on orders already booked. Many of the shops are continually taking on new men, and, in several instances, night-shifts have been recently instituted. With an increasing demand for second-hand tools, largely small planers, lathes, drills, etc., for use in small repair shops, there seems to be a decreasing supply, which may probably be accounted for by the fact that manufacturers are at the present time adding to their equipment rather than displacing it, in order to

meet the requirements of increased volume of business. Forge shops and foundries are busier than ever, and in the majority of cases are far behind on their orders.

The United Steel Co., Canton, O., has increased its capital stock from $750,000 to $1,500,000, and will proceed at once to install three additional 50-ton, basic open-hearth furnaces, the contracts for which are now being let. This will give the company six 50-ton furnaces.

The Cleveland Pneumatic Tool Co., Cleveland, advises that its business is beginning to show a marked improvement over what it has been for some time past. Inquiries for pneumatic tools and rock-drills are becoming more numerous as mining interests begin to awaken, and a general strengthening of the metal markets holds great promise for this concern. The company is getting ready to manufacture a new type of rock-drill that is expected to show an increased efficiency of about 100 per cent over the drill now being made. Extensive tests are being carried on in which the new drill is showing up most favorably, although there are some changes to be made before the drill will be ready for the market. The company expects to be prepared to take care of orders for this tool in about two months.

The National Sheet Steel Co., Mansfield, O., has been reorganized and will now be known as the National Rolling Mill Co., and the following officers have been elected: W. M. Blecker, president and general manager; Frank A. Bare, secretary and treasurer; C. V. Moriarity, second vice president; all of Mansfield. E. E. Mack, of Canton, O., is first vice president. A blue steel furnace has been recently added to the equipment. The company is contemplating the addition of a galvanized steel roofing plant.

It has been announced that a new power plant will be installed at the Akron, O., works of the International Harvester Co.

The Cleveland Machinery Exchange has opened offices at 1529 Rockefeller building, Cleveland, and will deal in new and second-hand machinery. The new concern is under the management of P. J. Brennan Sr., formerly manager of Wickes Bros., Pittsburg.

The American Steel & Wire Co., Cleveland, is reported to be in the market for machine tools for its new Cuyahoga plant. One 12-inch, one 14-inch, one 18-inch and one 32-inch lathe; two 36-inch planers; one five-foot universal radial drill; one bolt cutter; one power hack saw; one No. 2 milling machine; two emery grinders; one double motor-driven grinder, and one hydraulic forcing press are among the requirements.

MILWAUKEE.

Manufacturers Continue to Take Optimistic Views of Trade.

Milwaukee, Wis., Aug. 17.—It has been a very long time since so much "prosperity talk" was heard in Milwaukee as at this time. While it is fully realized that talk does not make prosperity, manufacturers in all lines insist that their statements are based on fact. The end of the tariff struggle has served to imbue more confidence into the industries. The prospects of a bumper crop have really created enthusiasm.

Thomas J. Neacy, president and general manager of the Filer & Stowell Co., which also owns the Beaver Mfg. Co., supplying many automobile engines used in the United States, says:

"Orders are being offered to manufacturers as fast as they can take care of the work, but thus far at low prices. The Filer & Stowell works are running at 75 per cent of normal capacity, and it would suit us if it took until spring to reach full normal. That business is healthy is proven by the fact that prospective customers are not asking for long credits. The Beaver works has a full year's work ahead."

"The outlook could hardly be better than it is," said L. F. Bowers, first vice president of Allis-Chalmers Co. "There has been great improvement in the electrical equipment and mining machinery departments, dating back four to five months. We are not yet back to normal capacity but will attain that point slowly."

Charles F. Hass, treasurer of the A. O. Smith Co., pressed steel automobile frames and parts, said: "We are running night and day with 800 hands and are sold ahead for a year. With our new factory in use next December, we shall be able to increase our capacity $2,000,000, or practically double it. We will employ at least 500 more men."

Pawling & Harnischfeger Co., manufacturer of traveling cranes, etc., reports that it is now evident that a smart revival has set in.

The Thomas Furnace Co., 740 Kinnickinnic avenue, is preparing to relight stack A late this month or early in September. The stack was blown out several weeks ago and is now being relined. The track elevation on the south side has interfered with the furnaces and the company took advantage of the enforced respite to make improvements. The yard trestle is being rebuilt. About 10,000 tons of ore have had to be moved because of the track elevation work by the Milwaukee and the Northwestern railways. John M. Thomas, president of the company, says that the demand for pig iron has greatly improved and that the trouble of late has been to prevent buyers from speculating in pig.

The Menominee (Mich.) Machinery Co. is using the former works of the Marinette (Wis.) Iron Mfg. Co. as a storage and setting-up shop for second-hand machinery. The Menominee company, owned by the Prescott interests, has closed several big deals in second-hand, rebuilt saw mill machinery during the last few weeks.

The R. J. Preuss Co., Milwaukee, manufacturer of bed springs and steel couches, has finally obtained all rights to its new building site and the common council has decided to vacate several short streets that interfered with the building plans. Work will now be pushed on the new plant.

The Federal Specialty Co., of Milwaukee, has changed its name to Federal Pressed Steel Co. by amendment to its articles of incorporation.

The Bucyrus Co., of South Milwaukee, last week gave a demonstration of its new self-propelling piledriver before representatives of five railroad systems. The device was run from South Milwaukee to Racine on the Northwestern tracks at an average speed of 20 miles an hour, drawing, besides, a special car containing the railroad men. The piledriver promises to become as big a feature as the Bucyrus steam shovels, many of which are now used in Panama.

WILL MANUFACTURE STOVE CASTINGS.

The Pittsburg Foundry & Mfg. Co., recently incorporated, has fitted up a plant on South Twenty-first street, Pittsburg, which it is now operating for the manufacture of stove castings, gas-heating stoves, hot plates, etc. The company is also specializing upon the making of duplicate parts for stoves and furnaces manufactured in the central western states. Besides a modern iron foundry plant, the company has machine shop equipment for the manufacturing trade. Arrangements are now being made to increase the capital stock from $10,000 to $15,000. J. Davis, Uniontown, Pa., is president and Joseph J. Goldsmith, Pittsburg, secretary of the company.

BOILER STEEL SPECIFICATIONS

Discussed at Detroit Meeting of American Boiler Manufacturers' Association.

At the twenty-first annual convention of the American Boiler Manufacturers' Association held in Detroit last week, the report of the committee on uniform boiler specifications was presented, and adopted on the date of its reading, Aug. 11. This report rehearses the present state of the controversy as to boiler plate specifications relative to the allowable sulphur and phosphorus contents, which has been pending for some time between the American Boiler Manufacturers' Association and the steel interests. In substance it is as follows:

The original limitations as to sulphur and phosphorus as found in the specifications of the American Boiler Manufacturers' Association of 1889 were, phosphorus 0.04 per cent and sulphur 0.03 per cent. These specifications were cheerfully acquiesced in by all steel plate mills making boiler plate in 1890 to 1898. When the American Boiler Manufacturers' Association decided to make a slightly better specification, inasmuch as it was found that the maximum of sulphur and phosphorus contents was rarely ever reached in practice, steel makers protested strongly in spite of the fact that the new requirements were adopted by the American Society for Testing Materials. A compromise was finally agreed upon by the committees of the American Association of Steel Manufacturers and the American Boiler Manufacturers' Association in 1906. However, the American Association of Steel Manufacturers as a body refused to ratify this unconditionally, agreeing to it only so far as it applied to the American Boiler Manufacturers' Association, and resolving to maintain its standard specifications of 1903 as the basis for general trade.

Matters rested at this point until March, 1909, when a report of the American Boiler Manufacturers' Association committee was referred to the committee on standard specifications of the American Society for Testing Materials, recommending the adoption of the original specifications of 1889. However, the standard specifications recently published by the American Society for Testing Materials permitted the high phosphorus content complained of and specified an increase in the permissible percentage of sulphur.

The committee's report on this controversy closes with the statement:

"In view of the action of the steel plate manufacturers and the exercising of their influence as to our compromise with the committee of the American Society for Testing Materials, your committee deems it proper to confess that the agreement with the committee of the American Association of Steel Manufacturers, published to our membership on Dec. 22, 1905, on page 164 of the proceedings of the seventeenth annual convention, has become invalidated, and to recommend the re-adoption of the original specifications of the American Boiler Manufacturers' Association of 1899, as to sulphur and phosphorus, these agreeing with those of the United States navy department for the same class of steel."

Relative to a letter addressed to the American Boiler Manufacturers' Association, from Joseph H. McNeill, chairman of the board of boiler rules, of the commonwealth of Massachusetts, who desired an expression of its opinion as to the advisability of making provision, so as to take into consideration the elastic limit of steel in calculating the maximum allowable working pressure on shells and drums, the committee, in making its report, cites the following objections to any such provision:

1. The confusion that would be occasioned by the introduction of the elastic limit as a basis for the factor of safety, reducing it to 2½ or 3 from 5 or 6, which is universally understood to be based on the ultimate tensile strength.

2. The greater difficulty in determining the exact value of the elastic limit than tensile strength.

3. The misunderstanding on the part of the general public in thinking that the standards had been lowered with a lower factor of safety.

4. Conclusions reached in the matter by engineering societies and testing bureaus that no satisfactory benefit would be gained therefrom.

5. The fact that all the advantages which could be gained by introducing the practice suggested are covered by the general practice of specifying that the elastic limit is never to be less than one half of the ultimate tensile strength.

6. The use of two different methods for calculating the strength of boilers by the introduction of a new one.

The committee suggested that consulting engineers and steel mills which furnish boiler plate should be heard on the subject, and that the American Society of Mechanical Engineers as well as the American Society for Testing Materials give their views.

The committee further reports that in the state of Texas and the city of Detroit, the matter of inspection laws for boilers has been seriously considered. While in Texas the legislation proposed was defeated, those in charge of it intend to take it up again in the next legislature. In Detroit, an elaborate and carefully considered ordinance based largely on uniform American specifications and on the boiler rules of the commonwealth of Massachusetts has been passed. The ordinance embodies the best practice in the United States and is in strict accord with the highest authorities on the manufacture and use of steam boilers.

All the officers of the association were re-elected, and Chicago has been chosen as the place for the next annual meeting.

NEW ORE DOCK LEASED.

The Union Dock Co., composed of the Republic Iron & Steel Co., the Jones & Laughlin Steel Co., the Pittsburg Steel Co., W. P. Snyder & Co. and the Andrews & Hitchcock Iron Co., has taken a lease on a modern new ore dock which the Lake Shore & Michigan Southern Railway Co. is now building at Ashtabula, O., on a slip recently opened at that harbor. The company for several years has held an old dock at the same harbor, but this has become antiquated and insufficient in capacity through the increased ore operations of the different interests. The tonnage handled by these companies has grown so much that it has been found necessary to send a considerable surplus to private docks at Cleveland and other lower lake ports. The new dock, which will go into commission next spring, will have a capacity of several million tons of ore a year. It will be equipped with the most modern unloading and transporting machinery.

Explosion In Dust Catcher.—Owing to the statement in THE IRON TRADE REVIEW of May 20, that the gas washer was damaged somewhat by the gas explosion at the Mattie furnace of the Girard Iron Co., on May 8, an impression has been created among furnacemen that the explosion took place in the Mullen gas washer. The explosion actually occurred in the dust catcher, which was completely destroyed. A temporary connection was made between the downcomer leg and the Mullen washer and operations resumed with but small loss of time, the washer doing double duty with no apparent loss in efficiency.

Market Active and Feverish

Last week in the stock market was characterized by feverish activity and enormous sales, with sharp advances in the earlier part of the week, followed by marked declines later. The market was considerably influenced by the rumor of large railroad deals, and the enormous dealings on certain days gave rise to the report that some large operators were indulging in wash sales.

Monday, United States Steel and Union Pacific, Reading and other stocks advanced to new high records. The market was firm until late in the afternoon, when there was a reaction. The government crop report indicating some slight deterioration in crops was an unfavorable factor. Call loans advanced. Tuesday, there was less activity and some irregularity. The report of the copper producers became known, showing a very large falling off in the accummulation of metal, and copper stocks advanced. The money market advanced and grain continued lower. Toward the close, Wednesday, the market developed new strength and advanced. Thursday was the most active market of the year, the total sales being 1,499,400 shares. United States Steel, Harriman stocks, Louisville & Nashville and others made new records. In the afternoon, part of the advance was wiped out. Friday, Union Pacific was a dominating factor and advanced rapidly. Union Pacific issues and United States Steel constituted one-third of the market, in which 1,200,000 shares were sold. The general list reacted sharply and averaged lower all day. Saturday, the general list revived and trading became active and feverish again. Money on call was as high as 2½ during the week, and closed Saturday at 2¼. Time money advanced under an active demand. Gold shipments for the week from New York were $19,580. Bank clearings in the United States during the week were $2,996,202,902, which was $263,000,000 less than last week, or 20¼ per cent greater than for the corresponding week last year. The weekly statement of clearing house banks showed surplus decreased $2,081,150; loans decreased $5,171,700; deposits decreased $2,081,150, and the ratio of reserve, 26.6, against 26.7 last week. Non-member banks and trust companies showed loans and investments increased $4,515,000; deposits increased $7,336,900, and the percentage of reserve 18.5, against 18.6, last week. There were 225 commercial failures against 238 last week, and 248 the corresponding week last year. The report from the American Railway Association on car surplus shows that the total of idle cars numbered 207,173, which compares with 232,512 at the opening of the year. The largest reduction in the week was in box cars, amounting to 12,469. The number of shares sold during the week was 6,841,000, against 4,901,349 the week before, and 4,816,402 the corresponding week last year. Bonds, other than government bonds, were sold to the value of $21,674,000, against $30,378,000 the week before, and $18,308,000 the corresponding week last year.

THE LEADING INDUSTRIAL SECURITIES.

	Closing Quo. Aug. 14	Changes in week	Date 1909 Ann. M't'g.	Stock Outstanding	Basis	Dividend Last Declared	Dividend Date Last Div. Pay.
Allis-Chalmers	15¼	—1⅛	Sept. 2	$19,820,000		.....	.....
Allis-Chalmers, pr	53⅞	—2⅞		16 150,000	7 cum	1¾ Q.	Feb., 1904
American Can	13¼	+ ¼	Feb. 2	41,233,300		.....	.....
American Can, pr	84½	+ ½		41.233 300	7 cum	1¼ Q.	July, 1909
Am. Car & Foundry	67	+2⅜	June 24	30,000,000		½ Q.	July, 1909
Am. Car & Fdy., pr	121¾	—3		30,000,000	7 n. c.	1¾ Q.	July, 1909
American Loc	66¼	—2	Oct. 19	25,000,000	5	1¼ Q.	Aug., 1909
American Loc, pr	120	—1		25,000,000	7 cum	1¾ Q.	July, 1909
American Ship	67	.....	Oct. 13	7 600,000	4	1 Q.	Sept., 1909
American Ship, pr	106½	.....		7,900.000	7 cum	1¾ Q.	Oct., 1908
Am. Steel Foundries (new)	59½	—3¾	Dec. 2	17,184,000		.....	.....
Barney & Smith	35	.....	June 1	2,000,000	4	1 Q.	Sept., 1907
Barney & Smith, pr	85	.....		2,500,000	8 cum	2 Q.	June, 1908
Bethlehem Steel	32	—1½	April 6	14,862,000		.....	.....
Bethlehem Steel, pr	64¼	— ¾		14,908 000	7 n. c.	¾ Q.	Feb., 1907
Cambria Steel	45	—1	March 16	45.000,000*	3	1½ S. A.	Feb., 1909
Cambria Iron	46½	.....		8,468,000*	4	2 S. A.	Sept., 1908
Chicago Pneumatic Tool	26	+1½	Feb. 15	6,145,800	4	1 Q.	Oct., 1907
Colorado Fuel	46	— ¾	Oct. 18	34,235,500		3¾	April, 1902
Crucible Steel	125⅜	—1¼	Oct. 20	24,578,400		.....	.....
Crucible Steel, pr	78¾	—2¼		24,436,000	7 cum	1 Q.	Mar., 1909
Empire Steel	10	.....	April 27	1,254,770		.....	.....
Empire Steel, pr	65	.....		2,500,000	6 cum	3 S. A.	July, 1909
Fay & Egan	90	.....	Feb. 18	1,000,000	7	1¾ Q.	Nov., 1908
Fay & Egan, pr	110	.....		1,000,000	7 cum	1½ Q.	May, 1909
General Electric	169¾	—2½	May 11	65,178,800	8	2 Q.	July, 1909
Harbison-Walker	27	+2	Jan. 18	18,000,000		½	Oct., 1907
Harbison-Walker, pr	95	+4		9,600,000	6 cum	1½ Q.	April, 1909
International Pump	41⅞	+1	June 8	17,762,500		1	April, 1905
International Pump, pr	88⅝	+ ⅞		11,350,000	6 cum	1¼ Q.	Aug., 1909
Lackawanna Steel	49	+1	March 10	34,971,400		.....	.....
Lake Sup. Corp	26⅛	.....	Oct. 6	40,000,000		.....	.....
New York Air Brake	95⅞	—1⅛	June 17	8,012,500	8	2 Q.	Oct., 1907
Niles-Bement-Pond	100	.....	Feb. 3	8,500,000	3	1½ Q.	June, 1909
Niles-Bement-Pond, pr	100	.....		2,000,000	6 cum	1½ Q.	May, 1909
Otis Elevator Co	60	+1	March 15	6,375,300		1½ S. A.	April, 1909
Otis Elevator Co., pr	101	+1		6,295,000	3 n. c.	1½ Q.	July, 1909
Pa. Steel	68	.....	May 10	10,750,000		.....	.....
Pa. Steel pr	116½	.....		16,500,000	7 n. c.	3½ S. A.	May, 1909
Pittsburg Coal Co	14⅞	—1¾	March 9	28,104,600		.....	Nov., 1906
Pittsburg Coal Co., pr	54½	—1½		27,071.800	7 n. c.	1¾	April, 1905
Pressed Steel Car	51¼	—3¼	Feb. 17	12,500,000		3	Aug., 1904
Pressed Steel Car, pr	109	—1		12,500,000	7 n. c.	1¾ Q.	Aug., 1909
Pullman	197	.....	Nov. 10	100,000,000	8	2 Q.	Aug., 1909
Railway Stl. Spring	49½	—4⅛	March 4	13,500,000	2	1 S. A.	Oct., 1908
Railway Stl. Spring pr	106¼	—2¼		13,500,000	7 cum	1¾ Q.	July, 1909
Rep. Iron & Steel	39½	+ ⅜	Oct. 20	27,191,000		.....	.....
Rep. Iron & Steel, pr	107¾	— ¼		20,416,900	7 cum	2 Q.†	Aug., 1909
Sloss-Sheffield	85⅞	—1⅜	March 10	10,000,000	5	1¼ Q.	June, 1909
Sloss-Sheffield, pr	119	+1		6,700,000	7 n. c.	1¾ Q.	July, 1909
U. S. Pipe & Fdy	34¾	— ⅛	June 23	12,500,000	2	½ Q.	Dec., 1907
U. S. Pipe & Fdy. pr	84½	+ ⅜		12,500,000	7 n. c.	1¾ Q.	Sept., 1908
U. S. Steel	78⅝	+1⅛	April 19	508,302,500	3 n. c.	¾ Q.	Sept., 1909
U. S. Steel, pr	127	— ⅜		360.281,100	7 cum	1¾ Q.	Aug., 1909
U. S. Steel, 5s	114⅝	.....		463,798,000	5	5 A.	.....
Va. Iron, Coal & Coke	67	.....	Sept. 21	9,073,680		.....	.....
Westinghouse Elec	87	—2⅜	June 16	27,173,200	10	2½ Q.	April, 1909
Westinghouse Air Brake	118	.....	Oct. 5	14,000,000*		2½ Q.	Oct., 1907

Par value of shares, $100, except those starred (*). $50.
†¼ ex. and 6¾ to apply on deferred dividends.

Copper Stocks.

New York.—Amalgamated Copper closed 86¼, a gain of ⅛; Butte Coalition closed 25⅜, an advance of 1½; Calumet & Arizona closed at 677, a net gain of 12; Quincy Mining closed at 91½, a gain of 2½; North Butte closed 59⅛, a gain of 1⅞.

Financial Notes.

The directors of the National Enameling & Stamping Co. have declared the regular dividend of 7 per cent, payable in four installments of 1¾ per cent on the last day of each quarter, beginning Sept. 30.

Fay & Egan have declared a dividend of 1¾ per cent on preferred stock, payable Aug. 20, to holders of record Aug. 10.

THE INAUGURATION OF STEEL-MAKING ON THE PACIFIC COAST

Description of the First Plant West of the Rocky Mountains for Making Steel Bars and Shapes.

The Irondale Steel Co., Seattle, Wash., is building a small steel plant which it expects to operate in connection with its blast furnace at Irondale, near Port Townsend, Wash. The additional equipment, now under construction, consists of two 20-ton open hearth furnaces and three rolling mills, 22 inches, 14 inches and 9 inches, respectively.

The new plant is something of an experiment because it marks the first serious attempt to manufacture steel west of the Rocky mountains. Its development will be watched with great interest, both east and west, and upon its success depends, to a certain extent at least, the future of the steel industry on the Pacific coast. A small plant is being built partly because of the experimental nature of the undertaking and also on account of the relatively limited market on the Pacific slope and the peculiar conditions existing in the west.

The price of steel scrap in the Pacific states is relatively very low, due to the absence of steel foundries and open hearth plants which consume a large amount of scrap. Ordinary prices range from $6 to $11 per net ton, depending on the quality, against $12 to $16 in the east. Considerable quantities of steel scrap are shipped from the Pacific coast to the Atlantic seaboard and to Europe. It is the purpose of the designers of the Irondale plant to take advantage of this condition and use as large an amount of scrap as possible in the open hearth furnaces, together with some of the pig iron from the blast furnace. The stock price of soft steel bars on the Pacific coast is $44 per net ton at present; light angles and shapes job for $54 per ton. The annual consumption of all iron and steel products, except heavy rails, in the states west of the Rocky mountains, including export business, is about 1,500,000 tons. The new Irondale plant will have an approximate annual capacity of 21,000 tons of pig iron and 45,000 tons of steel. The plant will be prepared to roll squares and rounds from ¼ inch up to 4 inches, 20 feet long; flats up to 3 x 10 inches, also angles and channels up to 7 inches.

The plant originally consisted of a blast furnace with a capacity of 70 tons per 24 hours and a number of stationary charcoal kilns. This furnace was operated on charcoal which was produced from saw mill refuse purchased from the lumber mills in the vicinity. The furnace was last blown out in January, 1908. The stack has been repaired and is now in condition to be blown in.

As was reported in THE IRON TRADE REVIEW Jan. 7, 1909, the company was reorganized at the close of last year and reincorporated with a capitalization of $1,000,000. James A. Moore is president; John Schram, treasurer; M. M. Lyter, secretary; William Price, manager; R. A. McLellan was only recently appointed chief engineer and Oscar Stromberg is consulting engineer.

The company owns coal properties in the Tacoma district and the blast furnace will hereafter be operated on coke made from this coal. This distance from the mines to the furnace is about 60 miles.

The iron ore properties operated by the company are located in Washington and British Columbia at distances about 50 and 350 miles, respectively, from the furnace. Details regarding the ore deposits were published in THE IRON TRADE REVIEW, Jan. 7, 1909, page 33.

The new open hearth department consists of two 20-ton furnaces designed by Oscar Stromberg, consulting engineer. The furnaces are fired by oil and the melting chamber is 22 feet in length and 11 feet 3 inches in width. The hearth will be made of Austrian magnesite. The air regenerators will be 16 feet by 12 feet 3 inches by 14 feet 8 inches. The slag pockets are situated directly under the down takes, of which there are two, 2 feet 6 inches by 4 feet 6 inches. The weight of the hearth is carried on brick piers which support six I beams on which the rails supporting the brick work are laid. The air valve is of the ordinary Siemens butterfly type. The oil burners are supported on the melting platform and can be withdrawn from the furnace at will. The oil is atomized by steam and is supplied under 60 to 80 pounds pressure at 250 degrees Fahr.

The ladle equipment consists of three 25-ton ladles designed by Mr. Stromberg. The steel will be tapped into a ladle resting on an electrically operated car, from which it is tapped into small ingots.

Bottom poured or rising ingots will be cast. This is an innovation as far as American practice is concerned, although the system has been used extensively in Europe. The ingot molds are 8¾ x 10 inches inside; the walls of the mold are 3⅝ inches thick at the bottom and 2¾ inches at the top. The ingots will be 4 feet 3 inches in length and will weigh about 965 pounds each.

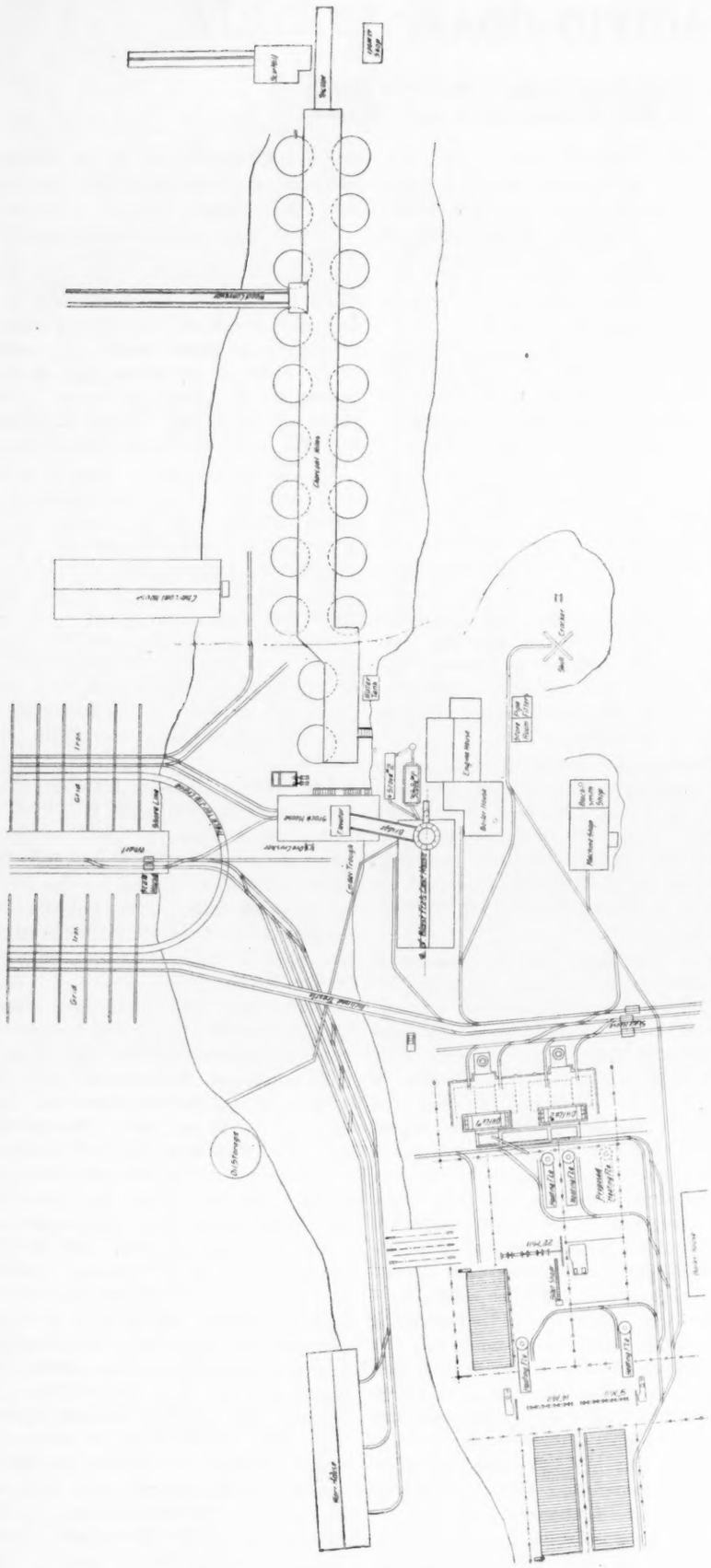
The molds are made open at both ends and are set on a specially designed bottom-cast plate. Twelve molds are set on a single plate and cast from one 6¾-inch runner. The plate is provided with slots which hold the clay pipes that conduct the metal from the central runner to the various ingot molds. The bottom cast plate is made of cast iron; it is 8 feet long by 6 feet 1½ inches in width and 6 inches high, the thickness of the metal being 2½ inches.

The casting pit in front of the open-hearth furnace is 40 feet long, 8 feet wide and 5 feet deep, with a cinder pit at each end 8 feet wide by 5 feet deep.

Two coke fired heating furnaces are situated just in front of the casting pit, while a third furnace is adjacent to the 9-inch mill.

The rolling mills, which are placed in two parallel rows, are located in front of the casting pit. The 22-inch mill is nearest the furnace, with the 9 and 14-inch mills placed 115 feet back of the 22-inch mill. The 22-inch mill is a three-high bar mill designed to roll a variety of bar and structural shapes; the mill has one stand of three-high pinions and three stands of three-high rolls. It was built by the Mesta Machine Co., Pittsburg. The 14-inch and 9-inch mills are designed to roll lighter bars and shapes. The 14-inch mill has three three-high roughing and one two-high finishing stands; the 9-inch mill has four three-high roughing and one two-high finishing stands. The mills are to be direct driven by Corliss engines; the boilers are six in number, 500 horsepower each, three being of the Badenhausen water tube type designed by John Badenhausen, Arcade building, Seattle.

The plan shows the general layout



General Plan of Works of Irondale Steel Co., Seattle, Wash.

of the mills, tracks, hot beds, etc., and indicates their relation to the blast furnace, wharves and shipping department.

ENGINEERING STANDARDS COMMITTEE.

Specifications for Cast Iron Pipes.

The British standard specification for cast iron pipes for hydraulic power, Report No. 44, has been issued by the above committee. It appears that the committee engaged in drafting the specification met for the first time in June, 1904, and information as to current practice was sought from the principal users and manufacturers of hydraulic pipes, resulting in a mass of valuable information being placed at the disposal of the committee. It was found that cast iron pipes for hydraulic power as generally used fell naturally into two divisions, the greater number being for pressures from 700 to 900 pounds per square inch, while in recent years higher pressures from 900 to 1,200 pounds per square inch were being extensively used. Two standard series have therefore been drawn up to suit these respective ranges of pressure. The committee regard 900 pounds per square inch as the maximum permissible pressure for Class A, and recommend that Class B be used when a working pressure of 900 pounds per square inch and upwards is the normal working pressure. As regards the leading dimensions, the committee have endeavored as far as possible, to fall in with the general practice in existing work as indicated by the replies received. In every case except one it has been practicable to adopt dimensions which will allow pipes made to the standard specification to be connected to existing pipes without alteration. The only exception is in the case of the diameter of the spigot of the 6-inch pipe, Class A. Two dimensions, 6⅞-inch and 7-inch, appeared from the replies to be in equally general use, and it was eventually decided to make the diameter of the spigot of the 6-inch pipe 7 inches, as the extra material could readily be turned off if it were required to connect the standard pipe to one having a socket of 6⅞-inch diameter. The existing practice with regard to the over all length of the standard tees was found to be very variable, and showed a general desire to keep down the weight of the tees by limiting their length, but the committee are of the opinion that there should be sufficient room between the back of the flange on one side of the

body of the tee and the branch to enable the bolts to be inserted from one end. Lengths may be easily varied as local circumstances may require, whilst still adhering to the standard in all other dimensions. It should be noted, however, that the standard bends for 90 degrees have been so proportioned in the larger sizes as to be interchangeable with the shorter sides of the standard-equal tees of the same bore, and any alteration to the short lengths of the tees and to the branches destroys such interchangeability. In the table of short lengths of straight pipes a length has been inserted for each size of pipe, which with a standard tee, will make up an ordinary straight length. The committee are of opinion that for pipes larger than 8-inch bore, Class A, and 7-inch bore, Class B, as also for pipes below 2-inch bore, cast-iron is an unsuitable material.

MODEL FOUNDRY AT ALASKA-YUKON-PACIFIC EXPOSITION

An event of more than passing interest to the iron trade was the opening of the model foundry at the Alaska-Yukon-Pacific Exposition, Seattle, on Thursday, July 22, on which date the first heat was taken off.

This marks the first attempt to hold an exhibition of foundry supplies and equipment at any point west of the Mississippi river. The exposition foundry has something more than a transient claim to interest; it is a permanent structure and after the fair will become part of the mechanical engineering equipment of the University of Washington. The university will in this way obtain one of the largest and most up to date college foundries in the world.

The building is a brick and timber structure 200 x 70 feet in size. It has a pleasing design and is a fair example of a modern foundry building. The windows are unusually large, occupying 90 per cent of the wall space and the ventilation through the roof is ample. The main doors are large enough to admit a box car. The foundry proper is 70 x 100 feet, the other half of the building being devoted to engine room, exhibits, etc. The central bay, spanned by a 10-ton traveling crane, is 30 feet wide. The crane was built by the mechanical engineering department of the University of Washington.

A radical departure from standard foundry practice is found in the location of the cupola. Instead of being centrally located with regard to the floor, as usual, it is placed at the south end of the building so that it can be more readily seen by the spectators while in operation. Aside from this and the care and thoroughness with which the building was constructed, the exposition foundry does not differ from the average commercial shop.

Exterior View of Foundry Building.

Interior View in Center Bay.

The two side bays are used for exhibit space, leaving the central bay free for molding floor. Among the exhibits are the following:

One 26-inch Whiting cupola.

One roll-over and one stripping plate molding machine, by Henry E. Pridmore, Chicago.

One Adams squeezer molding machine.

Sand blast apparatus, by the Detroit Foundry Supply Co.

One cinder mill, dust arrester and cleaning mill by the W. W. Sly Mfg. Co., Cleveland.

One oil-burning melting furnace and one oil-fired core oven by the Monarch Engineering & Mfg. Co., Baltimore.

One Corliss engine by the Murray Iron Works, Burlington, Ia.

One pressure gas producer designed for burning bituminous coal, lignites, soft wood and mill refuse, by the Northern Gas & Power Co., Vancouver, B. C.

The Han Yang Iron & Steel Co., through its distributor, E. P. Jamison & Co., Seattle, is exhibiting several grades of Chinese pig iron. The Wilkinson Coal & Coke Co., local manufacturers of foundry coke; the Cedar Mountain Coal & Coke Co., miners of molding sand, and E. P. Jamison & Co., dealers in foundry supplies and equipment, each have extensive exhibits.

All the machinery is seen in operation. Heats will be taken off once a week throughout the exposition period. The foundry is under the direction of O. E. Eastwood, professor of mechanical engineering, University of Washington.

The United Metal Trades Association of the Pacific Coast announced that September 6, Labor Day, will be foundry day at the exposition and special demonstrations of cupola practice will be made. The cupola operations will be in charge of J. H. Linton and the molding machines will be demonstrated by L. G. Blunt.

TONCAN METAL[1]

By F. M. English.[2]

The development of Toncan metal was undertaken to meet the demand for a black or galvanized sheet which would be moderate in price and have the highest corrosion resisting qualities for use in roofing, siding, eavestroughs, conductor pipe and for all other building purposes into which such sheets enter.

In undertaking the development of a sheet of this character, we have been guided throughout by the example set by the old-time iron master and by adapting old-time principles to modern methods as far as possible.

The problem of the old-time iron master, in making the quality of sheets which he did, was infinitely simple as compared to the problem facing the modern iron or steel maker who undertakes to reproduce sheets having the corrosion resisting qualities of the old-time goods and which also combine all the other qualities requisite in a sheet which must meet modern requirements.

Had we today the same raw materials, the same workmen, the same furnaces and exactly the same conditions, sheets could be made in all respects equal to any that have ever been made, but—it's a big "but"—could the manufacturer with such facilities begin to supply the enormous demand of today, and could he reproduce sheets at a price which would permit of their use in the vast variety of ways in which sheets are now being utilized?

To meet the present day demand for sheets—to enable the mills to keep pace with the ever increasing consumption, because of the infinite varieties of ways in which sheets are being employed—the slow, limited methods and processes of past days cannot be employed or reinstated.

The problem confronting the sheet manufacturer of today is—how to make sheets having the old-time corrosion-resisting qualities together with the necessary working qualities and at a price which will not curtail their use,—and the problem is no easy one. In other words, the sheet manufacturer of today must "make a dozen blades of grass grow" where one grew formerly—not at the same price and of the same quality, but at a lesser price, and of better quality, and with higher labor, inferior raw materials, and to withstand much more exacting conditions.

The conditions today to which sheets are subjected as compared to earlier times are also entirely different—the demands and requirements of the trade are far more exacting. The sheet of today to meet modern conditions must not only have the highest corrosion resisting qualities but they must also have working qualities and be able to withstand strains and stresses, in shaping, forming and handling, never dreamed of in the old days—to say nothing of the vastly changed atmospheric conditions to which they are now subjected. The sheet of today to meet all requirements demanded of it must be better than the old time sheets, and not only better but cheaper.

In placing Toncan metal on the market as a material in which are combined all the qualifications necessary in the present day sheet, whether galvanized or black, it is classed as a metal rather than as an iron or steel; because while it has corrosion resisting qualities equal to the old time iron, it also combines many characteristics of the highest grade mild open-hearth steel, making it the ideal material with which to meet all requirements of modern sheet metal practice, in that it will not only withstand corrosion but also the strains and stresses of shaping and forming without fracturing.

High Value of Older Products.

It is an indisputed fact that the corrosion resisting qualities of the early sheets were due entirely to their uniformity or homogeneity which was made possible through the proper selection of raw materials—through the principle involved in their handling and through the care and attention with which the iron was made. Plenty of time was given the raw materials while in the furnace, to eliminate any excess foreign impurities present and to properly combine those remaining, and also by handling the iron after it came from the furnace in such a manner that segregation did not take place during the reheating or working up processes.

Through modern research and investigation we know that corrosion is caused by the carbon, sulphur, phosphorus and manganese becoming segregated, during the process of manufacture, this theory having been fully demonstrated both in the laboratory and under actual working conditions—the corrosive action taking place in the following manner:

When the impurities—carbon, sulphur, phosphorus and manganese, become segregated in iron or steel—that is, when they are not equally and evenly distributed throughout the metal, occurring in small spots or areas, an electrical current will be set up between these segregated points whenever the sheet, in which they are present, becomes covered with a film of moisture from the atmosphere. Due to differences in composition, some of these points of segregation become positive, others negative, which when connected by the film of moisture, set up numerous electrical batteries of greater or lesser energy according to the extent of the segregation, so that there are limitless numbers of small electrical batteries continually at work throughout the sheet. It is a well known fact that a current of electricity cannot be generated in a battery without destruction or dissolution taking place at the positive pole so that in any sheet of iron or steel in which segregation has taken place and the surface of which through exposure to the atmosphere has become covered with a film of moisture, there are numerous small electrical batteries at work, at the positive poles of which the iron or steel is being destroyed, resulting in the form of corrosion known as pitting, a form with which you are all only too well acquainted. The more marked or strongly defined is the segregation, the stronger will be the electrical action; consequently the more rapid will be the destruction of the metal or sheet. On the other hand, the less well-defined the segregation, the weaker or milder will be the electrical action, and consequently the life of the sheet will be longer. Again, in a well-made sheet of iron or steel in which the impurities have been properly incorporated and segregation reduced to a minimum, the electrical action will be so slight that pitting will not take place, but instead an even coating of rust will be formed over the entire surface of the sheet in such a way that the rust will itself become, to a great extent, a protective coating, greatly retarding the process of decomposition or rusting. It was for this reason that the old time iron sheets withstood so phenomenally the ravages of corrosion. It was not because they did not rust that caused them to last but the way in which they did rust, that made them so long lived.

No iron or steel has ever been made or can ever be made that will not rust in moist air; because it is the nature of all products made from iron ore to rust and in time return to the natural state from which it originally came. But, the way in which the rusting takes place can be controlled, thus making

[1]An address to the National Association of Master Sheet Metal Workers, Louisville, Ky., Aug. 11, 1909.

[2]Stark Rolling Mill Co., Canton, O.

the sheet long lived, durable and the most ideal metal for roofing, siding, eave-trough, conductor pipe and similar other purposes.

It has generally been supposed that steel corrodes faster than iron, also that pitting is confined entirely to steel but this is by no means the case. Both iron and steel pit and corrode, and badly made iron, of which we are getting a great deal today, lasts no better than badly made steel. The opposite of which is also true, namely, that properly made steel will withstand corrosion and pitting equally as well as iron, besides having far superior working qualities.

There may possibly be some question as to how electrolysis takes place in causing corrosion as regards the exact chemical reactions; but that electrolysis actually does take place, and that it is the true cause of corrosion cannot be successfully disputed. The fact that electrolysis does occur is proven conclusively by the ferroxyl test, exhibits of which you have all examined. The object of this test is not to show the comparative lasting qualities of two or more pieces of metal but only to prove the theory of electrolysis by practical demonstration. The explanation of the test is this: At the poles of all electrical batteries two elements are always found to be present, namely hydrogen ions and hydroxyl ions. The hydrogen ions cluster around and indicate the positive pole. The hydroxyl ions in the same manner indicate the negative pole. The ferroxyl testing reagent is composed of certain indicators, the reactions of which when brought into contact with these two elements have been known for years. "Ferroxyl is a weak acid and is of such a nature that when brought in contact with hydroxyl ions it at once produces a pink color;" while potassium ferricyanide when hydrogen ions are present, causing iron to be dissolved or corroded, produces a blue reaction. Both of these chemicals are present in the gelatine mixture in which are imbedded the samples which you have examined, the blue color indicating the positive poles where destruction or corrosion is taking place, the pink color indicating the negative poles. No piece of iron or steel has ever been found which when subjected to this test will not sooner or later develop the pink and blue reaction which you have witnessed.

The point involved then in the manufacture of iron or steel which is to resist corrosion is to so combine and work up the raw materials that these electrical currents which cause corrosion will be of the mildest form and whose action is not concentrated or fixed through excessive segregation.

Of the many subjects which are of interest to the sheet metal worker and the user of sheets there is none of such vital importance as the subject of corrosion, and what affects the sheet metal worker also affects the sheet manufacturer, so that the cause and cure of corrosion is of common interest to both.

If the sheet metal business is to grow, expand and assume the position in the world of business which it should, it is absolutely necessary that the sheet metal workers strive in every way to use only such sheets as will stand up for at least a reasonable length of time and to avoid wherever possible the use of such goods as will prove disastrous to his business and his reputation. As manufacturers of sheets we have long recognized this fact, and for a considerable time have been carrying on a series of exhaustive tests and experiments to produce a material which would be reasonable in price, meet all requirements—both as regards corrosion resisting qualities and working qualities—thus placing within reach of every worker of sheets a material with which to combat and overcome the ever increasing prejudice against sheet metal for building purposes, a prejudice which has of late years been steadily increasing due to the unsatisfactory lasting qualities of a large majority of the materials which are now on the market.

The result of our efforts is Toncan metal, a material which combines the essential qualities of high corrosion-resistance, ductility, and moderate cost, above referred to.

We have carried on a long series of acid, salt and creosote tests, in addition to carefully noting results of exposure to actual every day working conditions, and we know that Toncan metal is all that is claimed.

With this necessarily incomplete outline of the qualities and characteristics of Toncan metal, and of the subject of the corrosion of iron and steel, we leave the subject hoping it will receive from the sheet metal worker the further consideration which is its due. The subject is certainly one of vital importance to every sheet metal worker, because the development and growth of the sheet metal industry will largely be determined by the degree in which corrosion is manifested in the materials adopted and used. The use of highly corrosive material will retard and lessen the demand for the sheet metal work, while the use of better and more lasting material will stimulate and encourage the demand.

ACHESON GRAPHITE COMPANY'S HYDRO-ELECTRIC PLANT.

The International Acheson Graphite Company is enlarging the output capacity of its branch works in Niagara Falls, Ontario.

This company has long operated a Canadian branch with facilities far in excess of the demands of the Canadian trade. It recognizes, however, in the hydro-electric development, now so active throughout the dominion, and the new trade spirit and energy everywhere present throughout Canada, an indication of an additional industrial enterprise, and it is to meet the prospective demand for its product, that it is increasing the size and output capacity of its existing plant in Niagara Falls, Ontario.

A new furnace room, providing for a 1,000-horsepower unit, is being built, and on completion the new furnace installation will be placed in operation. This will be an important aid in the development of Canadian resources, particularly now that so much attention is being paid to new processes, which mean much for the future of the dominion. Especially is this true of electrometallurgy and electrochemistry, the product of the enlarged works of the International Acheson Graphite Co. at Niagara Falls placing all such industries in close touch with a ready supply of electrodes.

It may be noted that the International Acheson Graphite Co. is the only maker of artificial graphite in the world. The Acheson graphite is made in the electric furnace. All other graphite is mined.—*Electrical Review.*

A very interesting working model of their combination water tube and tubular boiler, is being shown by the Lyons Boiler Works, at their Chicago office, in the Monadnock Block. The shell of the model is made of glass, so that, when heat is generated in the fire box, by means of a blow torch, the thorough circulation of water may be plainly seen. Five boilers of this type, of 400 horsepower each, recently were installed in the new La Salle Hotel, Chicago. Among other recent sales are two boilers, 20 feet x 96 inches, of 550 horsepower each, to the C. A. Goodyear Lumber Co., of Toma, Wis.

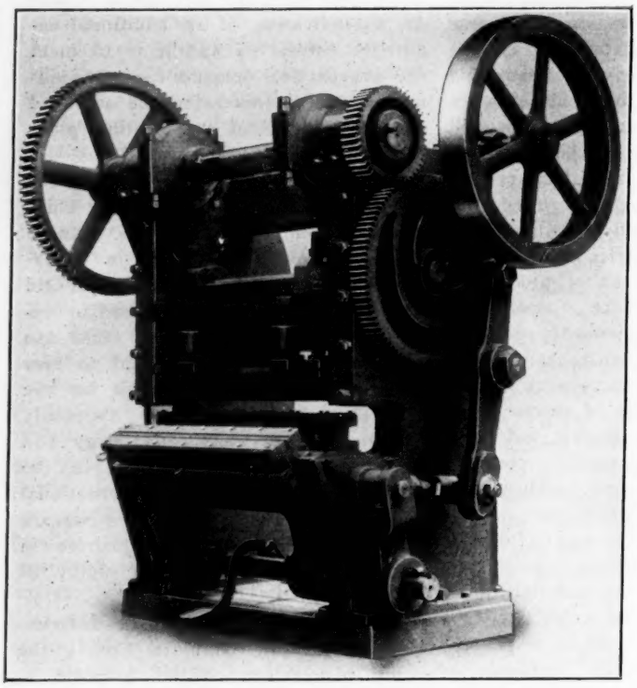
The Hudson Iron Co. is rebuilding its New Jersey furnace and will not resume operating until the last of the year.

A NEW FORMING PRESS.

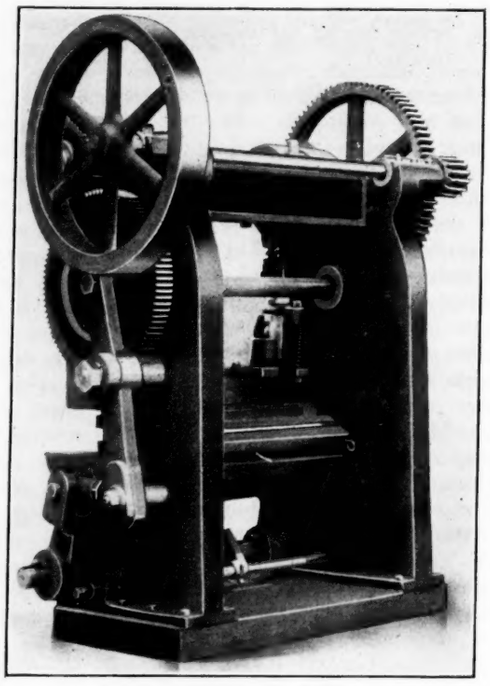
One of the latest devices in sheet metal working machinery is a double-acting press, recently designed and built by the Queen City Punch & Shear Co., Cincinnati, for stamping and forming various work in all descriptions of sheet metal. This machine is fitted with an oscillating table or die bed holding two dies, which receive the plunger alternately, and two operators are required to feed and remove work from the machine, one being at the front of the machine and the other at the rear. In operation one of the dies remains motionless while receiving the plunger and until the plunger is partly raised, then, with the work which has been formed or pressed, comes forward to the operator and pauses long enough to allow of the removal of the finished work and replacing with a blank. In the meantime, the other die is receiving the plunger and the work is being done in like manner, and in this way a speed of 20 to 30 operations per minute is reached.

The oscillating movement of the die bed is a most valuable and striking feature, since in addition to increased output it almost entirely eliminates the risk of accident. Cases of personal injury to press operators are amongst the most numerous occurring in manufacturing processes, but in this machine the operators have no occasion to place the hand or fingers between the dies when placing the blanks or removing the finished work. Incidentally, of course, this feature also removes the principal need of experienced help.

The accompanying illustrations show views of the machine from both front and rear, distinctly illustrating the position of both dies when ready to receive blanks, and gives an idea as to the absolute safety of the operators. The machine is built in different sizes for any service in sheet metal pressing or forming.



FRONT VIEW OF QUEEN CITY PRESS.



REAR VIEW OF QUEEN CITY PRESS.

AMERICAN CAPITAL INVESTED IN CANADA.

United States Consul A. G. Seyfert, reporting from Owen Sound, Ont., says that the present Canadian tariff has apparently been the cause of many American manufacturing companies having established branch industrial concerns throughout the Dominion. In his report the consul says:

Prior to the present protective policy of Canada, American firms made the goods at home and shipped the finished product here. In order to hold this business, it became necessary to establish American annexes here and manufacture the articles which they desire to sell to Canadians in Canada. From the best information obtainable, there are at least 150 such American firms in Canada, with a capital investment of $175,000,000. Probably the largest plant is that of the International Harvester Co., at Hamilton, which employs 3,000 to 4,000 men. The purpose in establishing this immense plant was not only to supply the Canadian farmer with agricultural implements, but also to manufacture farm machinery for export, as Canadian goods have a customs rebate in South Africa and on some lines in Australia, while Canadian farm machinery enters France at a lower tariff rate than similar goods from the United States.

Most of these American annexes are located in Ontario, among them being three large shoe factories, financed entirely by American capital, which came here during the past few years. The American shoes imported into Canada of late are chiefly the higher grade, $5 and $6 shoes. A lower grade, which could not be imported under the present tariff, is made by the American factories in Canada.

In the lumbering business there are enormous American investments. When a tax was put on saw logs for export, the Americans established sawmills in Canada. The capital invested by Americans in the Canadian lumbering interests is estimated to be not less than $40,000,000.

The value of the mineral products of the state of Tennessee in 1908 amounted to $17,289,957. Coke production amounted to 218,736 short tons, valued at $572,020, a decrease from the preceding year of 59.40 per cent. Iron ore production amounted to 588,988 gross tons valued at $808,676, a falling off of 28 per cent. Pig iron production amounted to 228,814 long tons, valued at $3,730,439, a decrease of 26.20 per cent.

PROTECTING SHIELD FOR FURNACE FLUES.

A patent has been granted recently to Horace B. Lash, of the Garrett-Cromwell Engineering Co., Cleveland, covering a method of protecting from the impingement of the out-flowing products of combustion the face of the arched partition separating the gas and air flue ports in an open-hearth furnace. The principle of the method, water cooling, is by no means new, even in furnace work, but its application as a protecting shield for brick work, is unique, and opens the way to many possibilities in this line.

Arched brick work in furnaces has always given considerable trouble, due to the fact that the temperature of the furnace gases, about 3,000 degrees Fahr., is sufficient to soften the silica brick to such a degree that the arch fails to sustain its own weight and gradually settles. This difficulty is entirely obviated by Mr. Lash in the following manner: As shown in the diagrams, three double-extra strong 2-inch pipes are placed one above the other against the face of the arch separating the gas and air flue ports. These pipes are water-cooled, and their position is such that gases are forced to impinge upon them before striking the face of the arch. In so doing, they are cooled several hundred degrees below the melting point of the brick.

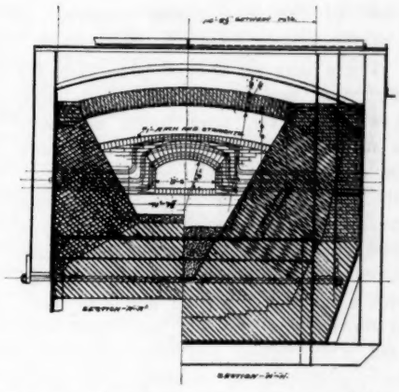


FIG. 2—ELEVATION OF FACE OF ARCH SHOWING CONTOUR OF PIPES.

The idea was first put to practical use by the Garrett-Cromwell Engineering Co. in the construction of the 200-ton Talbot open-hearth furnace for the New York State Steel Co., Buffalo. This furnace has now been in use long enough to demonstrate the practicability of the device.

AN EARLY HIGH SPEED CORLISS ENGINE.

In *Cassier's Magazine*, S. S. Webber relates the following interesting incident in the life of the late Edwin Reynolds, which furnishes an instance of the readiness with which he grappled with problems which more conservative engineers shrank from:

"Among the recent obituary notices of the late Edwin Reynolds, of Milwaukee, I have read one which mentions the high-speed 20-inch by 42-inch Corliss engine, designed by Mr. Reynolds for The Trenton Iron Co., and the statement was made that the then leading builder, George H. Corliss, would not consider the order, leaving it to be inferred that the engine was built elsewhere. This is incorrect, as the engine referred to was built at the George H. Corliss works in Providence, R. I., in the years 1876-1877; and a conversation between Mr. Reynolds and the writer concerning this engine may be of interest at this time.

"In preface to this conversation, I may state that the Trenton Iron Co. was in 1876 installing a Belgian 3-high-roll train, for rolling steel rods, and required an engine to drive the train at what was then considered high speed. The train was in two sections: the roughing section had the 12-inch rolls, and was to be driven direct from the engine shaft at 160 revolutions per minute; the finishing train had 10-inch rolls, and was to run at 355 revolutions per minute, and be driven from the same engine by belt, the engine having a pulley fly-wheel 10 feet diameter by 30-inch face, belted to a 54-inch by 30-inch pulley, attached to the spindle of the 10-inch roll train.

"There was but one maker of engines in the United States who had ever built, or was prepared to build, an engine for this service, namely, Charles T. Porter, builder of the Porter-Allen engine. It happened, however, that the Corliss Engine Works in Providence were given an opportunity to submit a bid, and, to the surprise of everyone, Mr. Reynolds came to Trenton and said he was prepared to build a Corliss engine for the required service, and solicited the order. A comparison of prices, time of delivery, and guarantee of performance resulted in the order being given to the Geo. H. Corliss Engine Co., of which Mr. Reynolds was then superintendent.

"Mr. Corliss at the time was in Europe, and Mr. Reynolds was in full charge of the works during his absence. About two months after the order was taken, Mr. Corliss returned to Providence, and as soon as his attention was called to the order for the engine for Trenton he sent for Mr. Reynolds. I will now quote in Mr. Reynolds' own words as related to me, the conversation between Mr. Corliss and himself:

" 'Mr. Corliss called me to his office, and appeared to be in high temper. He said: "What does this mean? How

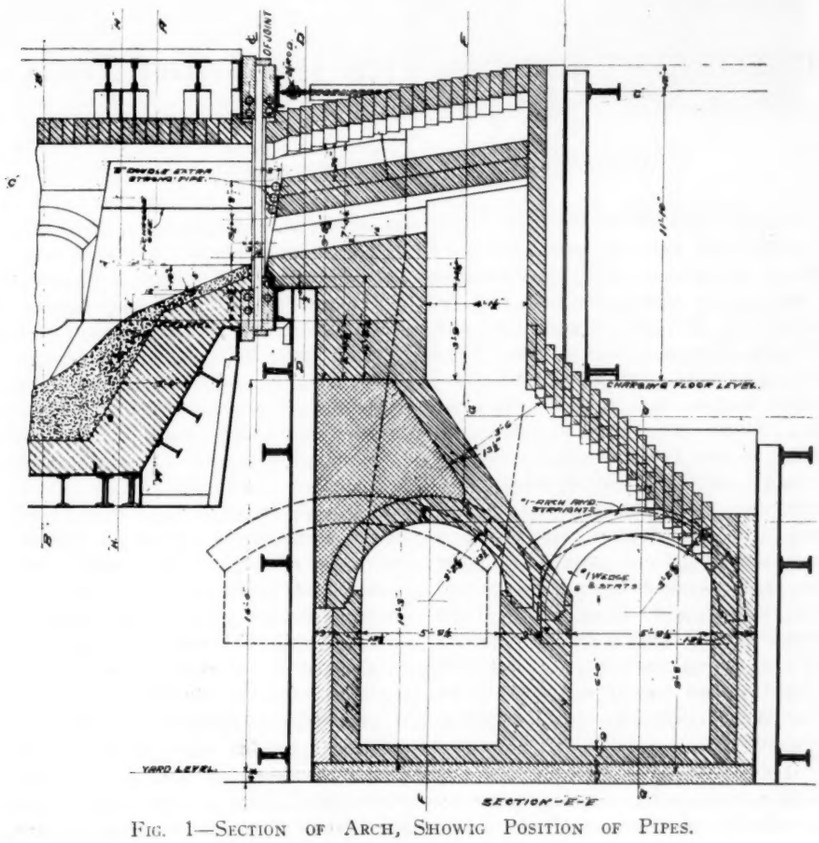


FIG. 1—SECTION OF ARCH, SHOWIG POSITION OF PIPES.

came you to take an order for an engine for such speed and purpose? It's unprecedented, and the most dare-devil piece of engineering I ever heard of. I won't have anything to do with it—you must take all responsibility on your own shoulders." I told Mr. Corliss that I knew I could build an engine that would successfully meet the condition, and explained the matter to him in detail, showing him how I had designed the engine, and telling him that the work was already in progress, and I felt bound to finish it. Mr. Corliss finally consented to the engine being finished, but refused to take the responsibility for its acceptance, so I said I would be responsible for it, and must take the blame and expense if it did not do the work and receive acceptance from The Trenton Iron Co.'

"Therefore, the engine was built and set up at Trenton, ran at the speed of 160 revolutions per minute, a piston speed of 1,120 feet per minute, drove the rolling mill, and so continued for over twenty years, running 18 hours out of the 24 a day and night turn of nine hours each, much to the satisfaction of The Trenton Iron Co., and greatly to the credit of Mr. Reynolds as a designer, who had in the meantime left the Corliss Works and gone to Milwaukee, to take the superintendency of the E. P. Allis Works.

"As it will, no doubt, be of interest to know as to some of the details of this engine, it may be said that the principal departure from the standard design was in the width of the steam and exhaust ports: these were twice as wide as usual for a 20-inch diameter of cylinder, and the valve had a correspondingly longer travel. To reduce the momentum of the moving valve gear parts, everything was made as light as possible, and the trip mechanism was all of steel and differed in some respects from the usual construction.

"The dash pots were of large diameter, and provided with an adjusting screw to regulate the degree of suction or vacuum, so as to insure closing the valve promptly after release. The frame was of the usual girder pattern then in use at the Corliss works, and the connecting rod, crosshead, and piston of the usual Corliss pattern. The crank was a disc, with the counterbalance cast in opposite the pin. The piston, however, had only one packing ring, which was about 1 inch wide, set midway in the width of the piston. The eccentric was unusually large in diameter on account of the long throw required to give the proper travel to the valves.

"There was no special provision for lubrication beyond the usual oil cups. It was, however, soon found necessary to make a special cup for the crank pin end of the connecting rod, as no oil cup could be kept filled long enough to run out a heat. Hence, a brass cup or box was made and firmly bolted to the connecting rod strap, with a screw cover that could be bolted down tight, the box was filled with hard, white tallow, and there was a copper pin ¼-inch in diameter that fitted loosely in a hole drilled through the bottom of the cup, one end of this pin resting on the crank pin and the other end projecting up into the tallow; there was enough end play to this copper pin to allow it to move up and down about a quarter of an inch at each revolution, and the crank pin heated enough to melt the tallow slowly around the copper pin, which fed it down to the crank pin a little at each turn. The results were good, though the pin, while the engine was running, was quite warm; in fact, too hot to hold one's hand on if touched immediately on stopping the engine after running out a heat. There was no overheating or undue wear on the pin, the surfaces maintaining a high polish.

"Indicator diagrams, taken from the engine, show clearly the variations in the loads; it was a continual variation from one extreme to the other between no load and full load while the rolling was in process. As the rod increased in length by repeating into the various passes between the rolls, the work on the engine increased.

"In 1891 The Trenton Iron Company found it desirable to roll a considerable quantity of steel rods of greater length than usual, from 250-pound billets, reducing from 4-inch square billets to No. 4½ rods, or 0.23 inch at one heat. This required greater speed and more power, so the steam pressure was increased from 80 pounds to 110 pounds, and the governor pulley on the engine changed to give a speed of 180 revolutions, or 1,260 feet piston speed, and an additional fly-wheel was put on alongside the 10-inch diameter belt fly-wheel, which gave a total fly-wheel weight of 34,000 pounds, and the belt speed with this higher engine speed became 5,653 feet per minute.

"We had no trouble from these higher speeds, the engine ran as well as before, and so continued for the next nine years, when a further extension to the capacity of the rolling mill required complete new equipment with two engines of larger size, and in consequence the old engine went where all bad and most good engines go—to the scrap pile."

HISTORIC STACKS IN THE HANGING ROCK REGION

Interesting Career of a Nonagenarian.

Probably nowhere in the iron trade is there to be found a record for continuous connection with one furnace property more remarkable than that of William N. McGugin, president of the McGugin Iron & Coal Co., Olive Furnace, Lawrence county, O. Mr. McGugin is now well past 91 years of age. Since 1851, that is, about 58 years, he has been identified with the operation of Olive and Buckhorn furnaces, two of the most important producers in the famous old Hanging Rock district. Until quite recently he was at the head of this company and was familiar with every detail of its operations, but owing to his extreme age its management in the last few years has been largely entrusted to his son, W. H. McGugin, as secretary treasurer.

Mr. McGugin is one of the best known of the many interesting characters which the Hanging Rock region has produced. He was born Dec. 27, 1817, in a log cabin on the site of what is now the business district of Wooster, O. His mother was of English descent and came from Pittsburg, while his father, a hatter by trade, was of Scotch-Irish stock. At that time, Wooster was so new a town that it had no public schools and young McGugin attended a subscription school in which each scholar paid a tuition of $1 a month, but the early death of his father forced him to work at the age of 15, and he entered the store of his uncle. He remained at this occupation until 1846, when, with his family, he removed to old Marble furnace, in Adams county, O., and for five years conducted a small foundry on the furnace site.

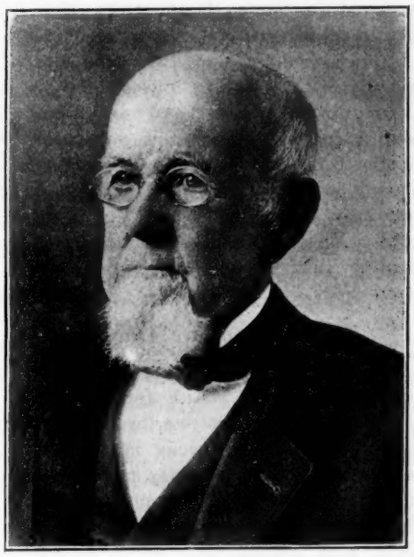
From Marble furnace, Mr. McGugin removed in 1851 to Gallia furnace, where he served as clerk for Bentley, Peters & Co., for a few months. He then went to Olive furnace, which was

then about five years old, and entered the employ of Campbell, Peters & Co. Thirteen years later, with Samuel McGugin, he bought out the interest of Mr. Peters and the firm name was changed to Campbell, McGugin & Co., and in 1876, on the death of Samuel McGugin, the firm purchased his interest as well. In 1883, Mr. McGugin secured the interest of Mr. Campbell, and for a considerable time the business has been carried on as the McGugin Iron & Coal Co.

Buckhorn furnace has not been operated since 1884, and most of its buildings have disappeared, although the stack is still in good condition. Olive furnace, however, was operated steadily up to the beginning of the late business depression and is a typical example of the charcoal stacks which half a century ago were scattered over Lawrence, Jackson, Butler and Scioto counties. The extensive land holdings of the McGugin company made it possible for this furnace to secure a plentiful supply of charcoal long after the timber adjacent to other furnaces in the region had been exhausted, which fact explains the survival of the industry, which has almost disappeared in southern Ohio.

On a Hillside.

Like the other old charcoal furnaces, Olive is located on a steep hillside, thus obviating the necessity of hoisting apparatus, as the ore, charcoal and limestone are delivered to the top of the hill ready for charging. The stack at Olive is 48 feet in height and about 40 feet square at the base, with a 9-foot bosh, and 4-foot hearth and two tuyeres. Originally it was hollowed out of a solid sandstone cliff and in that condition was operated for a time, but the presence of moisture in the rock made it necessary to cut away the stack from the cliff, giving an opening several feet wide entirely around the stack. A number of heavy cracks soon appeared in the stack, but caused no inconvenience. The hearth was originally lined with sandstone blocks cut to regular shapes and, toward the end of the blast, as these became worn down, the diameter of the hearth increased appreciably. For one blast some years ago, the hearth was lined with irregular sandstone blocks set in clay, and the arrangement proved quite satisfactory. The furnace gas is diverted to heat the boilers and after leaving them goes to the stove at the edge of the cliff in which the blast is warmed. Back of the furnace on the hill near the storage yards are two large ore roasters, each about 20 feet across and with a capacity of 125 tons. These consist of a steel shell lined with brick and contain the heat during the roasting process. The tops of these roasters are level with the road over which the ore is delivered to the furnace. Double oxen teams are still used to haul materials. The hilly character of the country near the furnace, which is situated in a narrow valley, can be imagined from the fact that the wagon road leading to the C., H. & D. station, over which the McGugin iron has always been delivered, runs through a tunnel of considerable length. Olive furnace has a capacity of as high as 25 tons per day. It has always operated on charcoal, limestone and native limestone ore from the company's properties.



WM. N. MCGUGIN.

The Bessemer Experiments.

It is interesting to note that Olive furnace figured prominently in the development of the Bessemer process of steel making and in the legal controversy between Sir Henry Bessemer and Wm. Kelly for the patent rights. Shortly after the Kelly process had been discovered, a Captain Hagerty, who had acquired the Ohio rights to Kelly's discovery, located at Olive furnace and endeavored to manufacture steel. His initial efforts were along the line of sending an air blast through the hot metal in the furnace hearth, an arrangement which failed for the reason that the blow pipe carrying the blast would not stand the heat resulting. Mr. Kelly was sent for and on his arrival a crude converter was built just in front of the furnace, the plan being to ladle the iron from the notch into the converter, which consisted of an old boiler shell with a brick lining. There is still to be seen a section of the copper pipe which carried the blast from the furnace tuyere to the converter. Some steel was produced and was sent to Ironton, O., but it met with a cold reception from the puddlers at that place and nothing came of the venture. When the Bessemer-Kelly controversy reached the courts, the depositions of Mr. McGugin, Captain Hagerty and others about the plant, were sought and used in the interests of the American inventor.

PROGRESS IN ELECTRIC CURRENT DEVELOPMENT IN THE ARTIFICIAL LIGHTING FIELD.

(Continued from last issue.)

The electric arc lamp is inherently a constant current device, because the electric arc has the characteristic of decreasing in potential difference with an increase of current. The early arc lamps were, therefore, constructed to operate in series from constant current dynamo machines, thus requiring a high line voltage, which was permissible for street lighting, for which such lamps were exclusively used. In the beginning of the nineties arc lamps began to be constructed to operate on constant potential circuits with incandescent lamps. For indoor lighting by arc lamps the constant potential enclosed type of lamp is now almost exclusively used. An arc lamp, in order to operate on a constant potential circuit, requires the addition of sufficient resistance in series with the arc, so that to increase the current it is necessary to increase the voltage. For this reason constant potential arc lamps are necessarily less efficient than constant current arc lamps, and this decrease in efficiency amounts to about 30 per cent in a direct-current lamp. In a constant potential, alternating-current arc lamp the loss in power is less, because a reactance is used instead of a resistance, but the power factor of the lamp is greatly lowered.

The relative specific power consumption of various types of carbon arc lamps of average size are given by Dr. Bell as follows:

During the latter part of the nineties a type of arc lamp was introduced, by Bremer in Germany and by Blondel in France, in which metallic salts, principally salts of calcium, were added to the carbons. In the operation of the lamp the metallic salt is vaporized and rendered incandescent, thus producing an arc which is highly luminous and of an orange-yellow color when calcium salts are used. These new lamps are called flaming arc lamps.

Two distinct types of flaming carbon

Type of arc.		Watts per mean spherical candle.	Remarks.
Direct current, open	Series lamp.	1.0	Medium power arc.
Direct current, shaded	Series lamp.	1.3	Medium power arc.
Direct current, enclosed	Series lamp.	1.9	Approximate.
Alternating current, open	Series lamp.	1.7	Approximate.
Alternating current, shaded	Series lamp.	2.2	Approximate.
Direct current, enclosed	Multiple lamp.	2.4	No outer globe.
Direct current, enclosed	Multiple lamp.	2.9	Clear outer globe.
Direct current, enclosed	Multiple lamp.	3.3	Opal outer globe.
Alternating current, enclosed	Multiple lamp.	3.0	Clear outer globe.
Alternating current, enclosed	Multiple lamp.	3.6	Opal outer globe.
Alternating current, enclosed	Multiple lamp.	2.5	No outer globe.

arc lamps have been developed. In the first type, due to Bremer, the carbons converge downwardly, the arc forming between the bottom tips of the carbons, a blowing magnet placed above the arc sometimes being used to project the arc downward, thus preventing the arc from climbing up on the carbons. This produces a long arc and gives a downward distribution of the light. In the lamp, as brought out by Bremer, the material of the carbons was mixed with salts of the calcium group. This type of lamp, with downwardly converging mineralized carbons, has been adopted by a number of manufacturers and is largely used. In the second type of flaming carbon arc lamp, due to Blondel, the carbons are placed in a vertical line one over the other, as in an ordinary arc lamp. This results in more light being projected in a horizontal direction and, therefore, gives a better distribution of light than is obtained with the first type of lamp. The electrodes are made of pure carbon provided with a core containing the minerals to be vaporized in the lamp.

Besides calcium compounds, titanium compounds have also been used, giving the arc a white color. The titanium arc is, however, not as efficient a light giver as the calcium arc. The effect of adding calcium or titanium salts to the carbons is, however, to produce fumes which prevent the enclosing of the arc in a small glass chamber. These flaming arcs must, therefore, burn in the open air with the result that the carbons have a short life and require frequent trimming. These flaming arc lamps have been very largely used for street lighting in Europe since 1900. During the past five years such flaming arc lamps have also been introduced in America; they are not generally used here for street lighting, however, but rather for lighting the fronts of shops, theaters, etc., or advertising purposes. Although the flaming carbon arc lamp gives more than three times as much total light for the same number of watts as the enclosed carbon arc lamp which is used generally for street lighting in America, the high cost of the carbons and of trimming due to the high cost of labor in this country, has been largely responsible for preventing the introduction of this lamp for street lighting in American cities. Flaming arc lamps can operate on direct or on alternating current and can also be constructed for constant current or for constant potential circuits.

A striking example of street illumination by flaming carbon arc lamps is found in South Broad street, Newark. The merchants along three blocks of this street combined with the electric light company to replace the 21 alternating-current enclosed arc which were used for lighting this portion of South Broad street, by 35 powerful flaming carbon arc lamps, spaced 60 feet apart. These powerful lamps produce a flood of light, attracting attention to this portion of South Broad street.

Early Carbon Arc Lamps.

While flaming carbon arc lamps have been commercially in use for less than ten years it is a noteworthy fact that even before 1880, various investigators in Europe and in America had experimented with carbon arc lamps in which the carbons were treated in various ways with mineral salts so as to produce a luminous arc. Prominent among these early investigators was Edward Weston, who in 1878, secured a patent for this type of arc lamp and actually constructed a considerable number of them. The yellow color of the light and the fumes produced were objected to, however, and these lamps were not generally introduced.

About 1904 a new type of luminous arc lamp was introduced by the General Electric Company, called the magnetite lamp. This lamp was developed with the object of producing an arc lamp which would combine the high efficiency of the carbon flaming arc lamp with the long life of the carbons of the enclosed type of carbon arc lamp. A similar lamp, manufactured by the Westinghouse Company, is known as the metallic flame arc lamp. This type of lamp can operate only on direct current, and is also known as the direct current, luminous arc lamp. The negative electrode consists of magnetite mixed with some titanium salts and compressed into a solid rod, or packed into a thin steel tube. The positive electrode may be any stable conductor and consists in practice of a short piece of copper. A long arc is drawn in this lamp, requiring about 75 volts, the electric current being carried through the vapor stream which issues from the magnetite electrode, and this is slowly consumed. This incandescent vapor stream is the main source of light, the luminous intensity being principally due to selective radiation from the incandescent vapor, with the result that the light emitted is of intense brilliancy and whiteness. The lamp as generally used requires 4 amperes and gives a total amount of light somewhat greater than that given by the 6.6-ampere enclosed, direct current arc lamp, or the 7.5-ampere enclosed alternating current arc lamp, with a corresponding saving in electric power. With this current the average life of a magnetite electrode is about 175 hours. More recently magnetite lamps using 6.6 amperes have been introduced in which the life of the magnetite electrode is about 75 hours. The copper electrode is not consumed, and in practice lasts several thousand hours.

A prominent example of an installation of large magnetite lamps is found in Boston, where recently a large number of 6.6-ampere direct current, enclosed carbon arc lamps have been replaced by 6.6-ampere magnetite lamps, lamp-for-lamp. These magnetite lamps are being operated from the same Brush arc generators which were used with the carbon arc lamps. The same amount of electrical power is, therefore, supplied, but more than double the total illumination is produced by means of these magnetite lamps.

The attempt to produce an equivalent of the magnetite lamp, which would operate on alternating current directly from a constant current transformer, has resulted in the titanium carbide lamp, known also as the alternating current luminous arc lamp, which has been placed upon the market quite recently. This lamp is described by N. R. Birge, in a paper entitled "The Present Status of the Arc Lamp for Street and Interior Illumination," presented before the 1909 convention of the National Electric Light Association. The upper electrode is titanium carbide compressed into a steel tube. The lower electrode consists of two half-round carbon rods, inclined at an angle, and kept in abutment at the top and in a fixed position by metal fingers forced against the bases. This arrangement maintains the upper ends of the lower carbons and the arc in a fixed position. The upper or titanium carbide electrode is arranged to be sep-

arated from the lower electrode by a lifting magnet when the lamp starts, but no feeding mechanism is provided in the lamp. These lamps are designed to operate in series from a constant current transformer. In order to provide for feeding the titanium carbide electrode, an arrangement is introduced in the circuit on the station switchboard whereby the circuit is instantaneously interrupted by means of an oil switch, automatically operated at intervals of about 20 minutes, thus allowing the titanium carbide electrodes to feed down in each lamp of the circuit. By this arrangement the lamp mechanism is greatly simplified, and it is claimed that the periodical interruption of the circuit is so quickly performed that there is no appreciable effect upon the light of the lamp. In the operation of the lamp both electrodes are consumed, the sizes being so chosen that they need replacing at the same time. The first alternating current, luminous arc lamps were designed to operate on 2.5 amperes, so as to give about the same amount of light as the enclosed 7.5-ampere, alternating current, arc light ordinarily used in street lighting; but lamps for currents of 3 amperes and 4.5 amperes respectively, giving a larger amount of light, are being constructed, for which currents the life of the electrodes is claimed to be about 75 and 50 hours, respectively.

An attempt to produce an enclosed form of flaming carbon arc lamp resulted in the Jandus regenerative flaming arc lamp, which was brought out in England about two years ago. The arc is surrounded by a cylindrical chimney of refractory glass, which opens at the top and at the bottom into metal chambers, which in turn communicate with each other by two curved tubes placed on opposite sides of the glass globe. When the lamp is in operation the hot gases from the arc rise into the upper metal chamber, and, becaming cooled, pass down through the two vertical tubes, depositing the solid particles on the walls of the tubes so that the vapor which enters the chamber from below is freed from these particles. The object of this arrangement is to enclose the arc, restricting admission of air and giving a long life to the carbons, and also to produce a higher temperature of the incandescent vapors. This enclosed type of flaming arc lamp is described by A. J. Mitchell, in a paper read before the National Electric Light Association, at its annual convention in 1909. A lamp of thtis type has recently been placed on the market in America for which a life of 70 hours of the carbons is claimed.

A number of carbon arc lamps have been developed in Germany and in France, in which the carbons are made of comparatively small diameter, in order to raise a large portion of the carbon tips to incandenscence, and in this way obtain a whiter and more efficient light and also to obtain a better distribution of light. These lamps are principally designed in small sizes, taking a small current, to be used for interior illumination, for which purpose flaming arc lamps are not generally desirable. A lamp of this type, known as the "Intensified Carbon Arc Lamp," has recently been placed upon the market in America, and is described in the paper by N. R. Birge, referred to above. This lamp consists of a lower negative carbon, of large diameter, and a pair of upper positive carbons of small diameter, inclined at an angle to each other. The upper portion of the lower or negative carbon is kept in a fixed position, while the two small positive carbons are arranged to draw the arc on starting and to feed downward, as they are consumed. In this way the arc is centered in a definite position, so that a reflector can be used for the purpose of projecting the light entirely in the lower hemisphere. The arc is also enclosed by a large hemispherical globe, restricting the access of air, and thereby giving the advantage of the long life of the carbons of an enclosed arc lamp.

Development of Incandescent Lamps.

In the consideration of the development of incandescent lamps it will be convenient to briefly point out the relation between specific power consumption and useful life. Incandescent lamps are commercially rated in terms of watts consumed per mean horizontal candle. It has been found that incandescent carbon filaments gradually volatilize, resulting in a reduction of light and a decrease in efficiency. Experience has shown that it does not pay to operate a carbon filament lamp after it has been reduced to about 80 per cent of its initial candle power, which point is sometimes called the "smashing" point. The useful life of the lamp, which is the number of hours that it will burn before it reaches this point, depends upon the temperature at which the filament is operated; it has been the practice to operate carbon filament lamps at such a temperature that this will take from 500 to 600 hours, and the specific consumption expressed in watts per horizontal candle is ordinarily based on such a current consumption that will give this life.

(To be continued.)

CANADIAN ORE.

Report of the Investigation Conducted by the Department of Mines.

The summary report of the mining branch of the Canadian department of mines for the nine months ending Dec. 31, 1908, is largely devoted to the iron and steel industries. The investigations carried on by the staff under Dr. Eugene Haanel, director of mines, included an examination into the electric smelting process in Sweden, concerning which some details have already been given; the testing of coals and lignites at the McGill University, Montreal; and preparatory work in connection with the establishment of a peat gas power plant at Ottawa for experimental purposes.

Fuel Testing.

During the last two years, tests have been made at McGill University, with coals and lignites selected by an officer of the mines branch. As new coal fields are continually being discovered and known deposits rendered more accessible by railway construction, the work of testing must be done on a larger scale. Hence it has been determined to continue it in a permanent building which is being erected by the department of mines at Ottawa, where modern machinery and appliances will be installed. The first work will be to demonstrate the usefulness of the low grade fuels, peat and lignites, for power purposes. As the most efficient steam plant only utilizes about 15 per cent of the calorific value of the fuel and a gas producer plant about 18 to 20 per cent, the saving of fuel by the employment of the latter is an important factor in the problem of the utilization of the Canadian peat bogs. A practical demonstration of the use of peat fuel, which it is intended to manufacture at the experimental peat plant, will, it is anticipated, assist in placing the peat industry on a sound commercial basis.

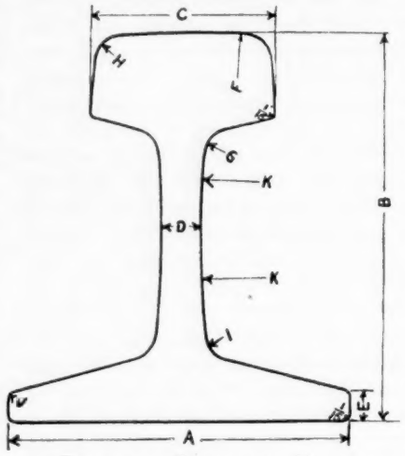
Examination of Iron Ore Deposits.

Investigations by Einar Lindman, of the iron ore deposits on the northwest Miramichi river, Northumberland and Gloucester counties, N. B., do not indicate that anything of commercial value has so far been found in that region. Another area inspected by Mr. Lindman was the country around the line of the Port Arthur & Duluth railway from the international boundary 33 miles eastward to Whitefish lake. The similarity of the iron-bearing rocks of the district to those of the Mesabi

range induced the hope that rich deposits might be found there. With the exception of some enrichment of thin layers of magnetite, no second concentration of the iron ore foundation seems to have taken place and so far, no commercial ore deposits have been found. At Loon lake, about 26 miles east of Port Arthur, considerable exploratory work has been done by test pitting and diamond drilling. The result shows that the iron-bearing rocks have been subject to a secondary concentration and altered in hematite which, as a rule, is reported to be low grade.

A magnetic survey of the Huron Mountain mine in the Temagami forest reserve, Ontario, by B. F. Haanel, showed that the iron occurrences were confined almost entirely to a hill approximately 1,800 feet long and 700 feet wide, its highest point being 260 feet above the lake level. The ore occurs in the Keewatin iron formation. Forty samples collected for analysis showed the ore to be fairly high in iron and free from deleterious ingredients. Diamond-drilling is being prosecuted by a gang of 60 men.

Howells Frechette made examinations of iron ore deposits in Mayo township, Hastings county, Ont. The principal of these is at Bessemer, from which shipments are made to the furnace at Midland. An average analysis of 25 carloads showed iron, 54 per cent; sulphur, 0.075 per cent; phosphorus, 0.022 per cent. Experiments made with the lower grade ores of this area to determine their suitability to magnetic concentration demonstrated that though too low in grade for direct reduction they were well adapted for magnetic concentration and should furnish a high grade product at low cost.



REFERENCE SECTION OF RAIL.

RAIL SECTIONS COMPARED.

We have received from Robert W. Hunt & Co., Chicago, a comparative sheet showing in detail the particulars of the latest rail sections adopted by different roads, and which is reproduced herewith. The table gives at a glance the comparative characteristics of each detail and, aside from its reference value, is interesting as exemplifying the difference in opinion which exists on the subject.

SECTION	WEIGHT	TYPE	A	B	C	D	E	F	G	H	I	J	K	SLOPE OF HEAD	SPLICE BAR ANGLE	% HEAD	% WEB	% BASE
ARA	100	A	5 32/64	6	2 48/64	36/64	24/64	14	6/16	6/16	6/16	1/16	14	1/16 TO 1	4 TO 1	36.9	23.4	39.7
"	"	B	5 3/64	5 41/64	2 42/64	36/64	31/64	12	5/16	6/16	5/16	1/16	12	3°	13°	40.2	19.2	40.6
"	90	A	5 8/64	5 40/64	2 36/64	36/64	24/64	14	6/16	6/16	6/16	1/16	14	1/16 TO 1	4 TO 1	36.2	24.0	39.8
"	"	B	4 43/64	5 17/64	2 36/64	36/64	31/64	12	5/16	6/16	5/16	1/16	12	3°	13°	40.1	19.2	40.7
"	80	A	4 40/64	5 8/64	2 32/64	33/64	24/64	14	6/16	6/16	6/16	1/16	14	1/16 TO 1	4 TO 1	38.8	21.0	40.2
"	"	B	4 28/64	4 60/64	2 26/64	35/64	31/64	12	5/16	6/16	5/16	1/16	12	3°	13°	38.8	19.5	41.7
"	70	A	4 16/64	4 48/64	2 24/64	32/64	24/64	14	6/16	6/16	6/16	1/16	14	1/16 TO 1	4 TO 1	39.3	21.8	38.9
"	"	B	4 3/64	4 35/64	2 24/64	33/64	29/64	12	5/16	6/16	5/16	1/16	12	3°	13°	40.1	19.5	40.4
CANADIAN PACIFIC	85		5	5 8/64	2 32/64	36/64	24/64	8	6/16	4/16	6/16	4/16	8	2 7/16 AT TOP	4 TO 1	36.7	22.2	41.0
SANTA FE	85		4 56/64	5 24/64	2 32/64	36/64		14	6/16	6/16	6/16	1/16	14	1 TO 16	4 TO 1	37.0	22.7	40.2
PENN	100		5	5 44/64	2 43/64	36/64	34/64	10	5/16	7/16	5/16	1/16	10	2 1/2 AT TOP	15° TOP 13° BASE	41.0	18.6	40.4
"	85		4 40/64	5 8/64	2 32/64	34/64	30/64	10	4/16	7/16	4/16	1/16	10	0	15° TOP 13° BASE	42.2	17.8	40.0
GREAT NORTHERN	90		5	5 24/64	2 40/64	40/64		14	6/16	10/16	6/16	1/16	14	5°	13°	36.6	23.3	40.1
CANADIAN NORTHERN	80		5	5	2 36/64	35/64	21/64	8	6/16	4/16	6/16	4/16	8	2 1/2 AT TOP	13°	39.2	21.3	39.5
DUDLEY	100		5 32/64	6	3	38/64		14	8/16	5/16	5/16	1/16	14	1 TO 16	4 TO 1	41.2	24.2	34.5
"	85		5	5 16/64	2 44/64	34/64		14	8/16	5/16	5/16	1/16	14	1 TO 16	4 TO 1	45.4	21.0	33.5

CHARACTERISTICS OF VARIOUS SECTIONS.

LARGE ELECTRIC-DRIVEN MUNICIPAL PUMPS.

It is reported that the city of Toronto, Can., is soliciting proposals on two 1,500-horsepower induction motors, four 1,500-horsepower synchronous motors, four 500-horsepower synchronous motors, two 500-horsepower induction motors, two 300-horsepower induction motors and two 225-horsepower synchronous motors, with direct connected turbine pumps in each case, together with valves, piping, bed-plates, couplings, etc. The total horsepower foots up 13,050, which will be recognized as probably the largest electric pumping installation so far attempted.

TRADE PUBLICATIONS.

STEEL CEILINGS AND INTERIOR FINISH.—From the W. F. Norman Sheet Metal Mfg. Co., Nevada, Mo., comes a 64-page, 11 x 14-inch catalog, illustrating their various designs of pressed steel ceilings, walls and panels. Some of the illustrations would indicate that out of the west is to come the revision and purification of much of the design employed in this class of work.

RAILWAY SIGNALS.—The Railroad Supply Co., Chicago, has issued supplement to Section 1, of Catalog No. 7, describing its highway crossing alarm.

TURRET MACHINERY.—The Garvin Machine Co., New York, has issued a new 92-page edition of its catalog describing its well known line of turret machinery and the tools therefor. Few tools are better known than the Garvin, but the catalog is particularly clear in its descriptive matter.

SIMPLE AND COMPOUND STEAM ENGINES.—The Trenton Engine Co., Trenton, N. J., has issued Bulletin No. 7, covering their line of vertical and horizontal engines.

BOILERS.—The Edge Moor Iron Co., Wilmington, Del., is distributing a 93-page, 6 x 9 inch book, descriptive of its plant and of the various types of boiler, pressed steel forgings, etc., to which it is devoted.

CHAIN BELT.—The Chain Belt Co., Milwaukee, Wis., is sending out a 30 page catalog describing its line of chain belting and various applications thereof, with lists of standard patterns of sprocket wheels, gears, etc. Catalog also includes a line of transmission machinery, clutches, pulleys, hangers, couplings, and a number of specialties such as tumbling mills and screens.

SELF OILING BEARINGS.—The Hill Clutch Co., Cleveland, is sending out a series of booklets on transmission machinery, and the first of these has been received and treats of shaft bearings and of the Hill collar oiling bearing in particular.

MINERS' TOOLS.—The Warwood Tool Co., Wheeling, W. Va., has issued a 38-page, 8 x 10½-inch catalog describing its line of forged tools, including picks, mattocks, grub hoes and miscellaneous coal miners' tools, wedges, sledges, crowbars, etc.

STEEL SHEET PILING.—The growth in the use of steel as a substitute for wood in sheet piling is well illustrated in a catalog sent out by the Lackawanna Steel Co., illustrating its form of section. The illustrations set forth in a graphic manner the strains to which steel coffer dams may be successfully exposed and the facility with which they may be driven.

NEWS FROM MANY INDUSTRIES

(In order to assist the post offices in delivering letters to new concerns, it is suggested that the names of incorporators be written in the lower left hand part of every envelope addressed to such new companies.)

New Buyers:—

The following manufacturing companies have filed articles of incorporation:

The Lacon Bridge Co., Lacon, Ill.; $70,000; by John I. Thompson, Frank F. Specht and William Riddell.

The Chicago Automobile Self-Starting Appliance Co.; $70,000; by C. E. Crane, Harry Hobbs and Charles Conlon.

American Ornamental Iron & Bronze Co., Minneapolis, Minn.; $100,000; by G. H. Wallis, Hubert Kelley and Alda Wallis.

Buckeye Rolling Mill Co., Newark, O.; $10,000; by Edward Monas, L. L. Grunes, J. T. Sarratt, F. M. Work, E. E. Francey.

The Wells Coke Oven Leveler Co., Appalachia, Va.; president, D. J. Wells; vice president, M. L. Stallard; treasurer, J. W. Guntner; secretary, William Wells.

The Walking Dredge Mining Co., Grand Rapids, Wis.; $25,000; by M. O. Potter, E. D. Warner, H. C. Timm, L. W. Querhammer and S. A. Warner.

The Wilberding & Brandewiede Co., Cincinnati; automobiles; $10,000; by Wesley L. Furste, B. H. Wilberding, Fred Brandewiede, Phil Schneider and Joseph Berning.

The Wood-Peck Hardware Co., Newburgh, N. Y., hardware and hardware supplies; $40,000; by Guy S. Wood and Anna B. Wood, Newburgh, N. Y., and Frank B. Peck, Cornell, N. Y.

The Jackson Wire Mfg. Co., Worcester, Mass.; $75,000. President, Chester S. Ellis, Winthrop, Mass.; treasurer, George W. Jackson, 54 Fruit street, Worcester; clerk, J. Arnold Farrer, 73 Tremont street, Boston, Mass.

The Manhattan Metallic Casket Co., New York, caskets and coffins, $5,000; by Maxt Tischler, 116 East 109th street, New York, and others.

The South End Machine Co., Akron, O.; $10,000; by A. A. Replogle, 842 Boulevard; Louis A. Cook, mechanical engineer; Frank T. Seidel, Fred A. Harvey, 787 Bell street, with the Diamond Rubber Co., and T. Oscar Evans, manager the Hower Building Co.

The Harrison Engineering Co., New York City, machinery, particularly for heating and ventilation; $500,000; by P. B. Gibson, 146 West Sixty-fourth street; H. E. Harris, 20 West Ninety-eighth street, both of New York; B. S. Harrison, 252 LaFayette avenue, Brooklyn.

The Roebuck Weather Strip & Wire Screen Co., Brooklyn, to manufacture wire screens and weather strips, with $100,000 capital stock, has been chartered by Charles F. Fairbanks Jr., George A. Warren, both of Clinton, Mass., and Walter H. Dodd, 20 Broad street, New York City.

Daniel K. Stucki Co., Buffalo, to manufacture and sell furniture, machinery, hardware, tools, etc., has been chartered with $200,000 capital stock. The incorporators are Orpha H. Stucki, 599 Ashland avenue; Robert J. Kemp, 100 Glenwood avenue, and Janet K. Pulsifer, 599 Ashland avenue, all of Buffalo, N. Y.

The Automobile Rim Securities Co., New York City, to manufacture automobile and vehicle parts and accessories, with $150,000 capital stock, has been incorporated by Henry W. Goddard, 342 West Eighty-fifth street; Robert H. Gay, 30 West Forty-fourth street, both of New York, and Edward Weck, Jersey City, N. J.

New Construction:—

The fire and water board of Kansas City, Mo., has appropriated over $16,000 to build a machine shop in connection with the water works pumping station.

The Hastings Foundry & Iron Works, Hastings, Neb., has bought a site 300 feet square in Hastings, and will build a foundry and structural steel shop.

The Screw Cutting Co. of America, Philadelphia, has bought from the Girard Trust Co. a plot of ground 55 x 155 feet, and will build an addition to its plant.

The Pech Foundry & Mfg. Co., La Mars, Ia., has purchased land and will build a new building 40 x 180 feet, to be used for the manufacture of well augers.

John A. Roebling's Sons Co., Trenton, N. J., has begun the erection of a new building 208 x 70 feet, which it will use for the production of flat wire for covering hose.

The Pequonnock Foundry Co., Bridgeport, Conn., has bought two acres, which it will use as a site for a new plant. The main building will be a concrete steel foundry.

The plant of the Fairbanks-Morse Mfg. Co., Beloit, Wis., is to be increased by the addition of an erecting shop, 100 feet long, and also by additions to its paint shop and warehouses.

The Early Sun Stove & Range Co., which was recently incorporated, has acquired a foundry property at Somerset, O., which it will put in shape at once for the manufacture of stoves and ranges. Its sales office and accounting department will be in Newark, O.

The Allyne Brass Foundry Co., Detroit, has purchased 23.78 acres in Detroit, and is preparing to erect a fireproof building, 350 feet square, which will be operated as an aluminum foundry. The old plant of the company will be continued as a brass foundry. Later, another building will be erected on the new site for that branch of the business.

The Standard Foundry Co., Lansing, Mich., has been organized with a capital of $20,000. It will manufacture Hildreth pumps. The company will occupy the quarters formerly occupied by the Hildreth Mfg. Co. It expects to begin operations about the first of September, and is engaged in making improvements and repairs in the shop. After January, part of the present plant will be made into a new machine shop.

The Youngstown Foundry & Machine Co., at its directors' meeting held recently, decided to make extensive improvements at its Boardman street steel casting foundry. It is intended to use the Boardman street foundry for the manufacture of sheet and tin mill rolls. Steel rolls of all sizes are to be manufactured. The directors also elected the following officers: W. J. Wallis, president and general manager; Frank A. Williams, vice president and sales manager; F. E. Parker, secretary and treasurer.

The Benicia Iron Works, Benicia, Cal., has an architect engaged on plans for a new plant. The improvements include a foundry, blacksmith shop, bolt shop, and other buildings. The company plans to make its improvements so that they will not interfere with the regular operation of its plant.

The Pennsylvania Foundry Co., York, Pa., has the work on its new pattern shop and iron foundry about completed and is at work on its new brass foundry.

Springfield, O., is enjoying a building boom among its industrial establishments. The Bettendorf Metal

Wheel Co. has let a contract for a $12,000 addition; the American Radiator Co. has plans for an addition to cost $10,000, and the Oscar Lear Automobile Co. plans a $3,000 improvement.

General Industrial:

Plans for the reorganization of the Maryland Rail Co., now in the hands of a receiver, are said to be nearing completion. Bondholders are to subscribe about $50,000 to put the plant in operation, and $25,000 is to be subscribed by the Baltimore & Ohio railroad. More than 75 per cent of the creditors have agreed to this arrangement, and a voting trust has been agreed upon to safeguard the interests of the bondholders.

The foundry formerly owned and operated by Williams P. Ford & Co., Concord, N. H., which was founded by William P. Ford in 1836, has recently passed into new hands and the establishment is now known as the Ford Foundry Co. Under the reorganization, John W. Storrs becomes president, Albert I. Foster treasurer and business manager, and Edward Dow Storrs superintendent.

Consul General George E. Anderson, Rio de Janeiro, has transmitted a report to Washington in which he describes discoveries of iron ore in Brazil amounting to the enormous total of 12,000,000,000 tons, as estimated by surveyors and experts. Fifty-two outcroppings of ore were located which proved to contain from 60 to 75 per cent of iron. The data upon which the report is based are in the hands of the Brazilian government and full details are withheld until after the facts are revealed to the geological congress in Stockholm.

With especially quick deliveries of the steel, rapid erecting work has been done upon the new 25-story office building now under course of construction at Pittsburg by the Henry W. Oliver estate. The last shipment of the fabricated material was made by the American Bridge Co. this week, which is seven weeks ahead of the time specified in the contract, and the final steel work upon the structure is now being placed in position. The erecting work is being done by the Pittsburg Steel Construction Co.

The Pressed Steel Pulley Co., Worcester, Mass., which was recently organized with a capital of $100,000, is closely connected with the Worcester Pressed Steel Co., and will occupy one of the two new buildings which that company is erecting. John W. Higgins, secretary and general manager of the Pressed Steel company, is president and treasurer of the new company.

Work on the new open-hearth steel plant of the Maryland Steel Co., at Sparrow's Point, has begun. The building, 425 by 170 feet, is to be of steel and is being erected by the bridge and construction department of the Pennsylvania Steel Co. William E. Underwood, who built the open-hearth plant of the Bethlehem Steel Co., is in charge of the engineering work. It is expected that the plant will be completed next spring.

The plant of the Maryland Steel Co. at Sparrow's Point, Md., is running full time six days a week and employing nearly 4,000 hands. The steel rail mill was the last department of the company to begin running full time.

The Muncie Motor Truck Co., Muncie, Ind., states that it intends to engage in the manufacture of automobile engines, particularly the two-cycle truck engine, which will be used by the Muncie Motor Truck Co.

The Cartga Foundry Co., Rome, Ga., has been organized with a capital stock of $20,000. The manufacture of stoves will be the principal business of the company. A foundry is expected to be ready to start about Sept. 15.

The Sin Clair Laundry Machinery Mfg. Co. has decided to move its plant to Gibson, Ill. The sales will continue to be made from Chicago, but the manufacturing will all be done in Gibson and some new construction work will be done there to accommodate the plant.

The roll and iron foundry and machine shop at Avonmore, Pa., has been purchased by the National Roll & Foundry Co., and is to be put in operation. J. B. Baird, formerly with the Canadian Roll Machine Co., is president, and R. A. McKinney, formerly purchasing agent of the American Sheet & Tin Plate Co., is secretary of the National Roll & Foundry Co.

The Steel Fire Proofing Co., Glenova, W. Va., has completed its factory building there. The company manufactures metal lath.

The Brylgon Steel Casting Co., New Castle, Del., has been awarded a contract by the government to build a steel casting plant at Cavite, Philippine Islands.

English dispatches say that many orders from America have been placed in England and Scotland for fire clay brick to be used in the construction of blast furnaces.

The Lamson Cutter Head Co., Chicago, has leased the premises at 41 to 45 Jefferson street in that city and will use the building for machinery manufacturing purposes.

The Malleable Equipment & Mfg. Co., Toledo, advises that it is having its work done by contract, and does not expect to build or to be in the market for anything in the near future.

The Model & Machinery Mfg. Co., Cincinnati, O., which was recently incorporated, advises that it proposes to build models, special machinery, model specialties and make special tools.

The Alabama Consolidated Coal & Iron Co. has gathered material preparatory to repairing one of its two stacks at Gadsden, Ala., which has been out of commission for several months. The other stack is now in blast.

The Shinbone Valley Iron & Timber Co., which was recently incorporated in Anniston, Ala., contemplates building 25 miles of railroad to open its iron lands. The company is capitalized at $600,000 and its officers are: R. F. Kolb, Montgomery, Ala., president; P. M. Clark, Lebanon, Tenn., vice president and general manager; C. W. Huffman, Lebanon, secretary-treasurer; O. M. Alexander, Anniston, general counsel.

The Brazil Machine & Foundry Co., Brazil, Ind., contemplates starting a foundry in the near future. It already has equipment which it moved from Adrian, Mich., and expects to be running in about two months.

The Vulcan Iron Works, Seattle, Wash., advises that it is now engaged in the building of an extensive jobbing house and manufacturing plant. Its supply house, of concrete, fire proof construction, 100 x 270 feet, will be six stories high. The company will have a machine shop 60 x 150 feet, threading shop, 110 x 150 feet; pattern shop, 60 x 100; structural shop, 60 x 200, with an ell, 60 x 150 feet. The expectation is to equip these buildings with the latest type of machinery.

Fires:—

The plant of the Wheeling Metal & Mfg. Co. was visited by fire the night of Aug. 11 and was badly damaged.

The foundry owned by Daniel W. Seeley, near Sodus Point, N. Y., was burned August 4. The shop was destroyed and the patterns burned.

The foundry of the Duplex Mfg. Co., Elyria, O., was burned Aug. 10. There was no one in the building when the fire started and it made such headway that the fire department could do little against the flames.